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EDITED BY

DAVID W. YANDELL, M. D.

*Prof. of the Science and Art of Surgery and Clinical Surgery, University of Louisville,*

AND

THEOPHILUS PARVIN, M. D., LL.D.

*Professor of Obstetrics and the Medical and Surgical Diseases of Women, College of Physicians and Surgeons of Indiana.*



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# THE AMERICAN PRACTITIONER.

FEBRUARY, 1878.

Certainly it is excellent discipline for an author to feel that he must say all that he has to say in the fewest possible words, or his reader is sure to skip them; and in the plainest possible words, or his reader will certainly misunderstand them. Generally, also, a downright fact may be told in a plain way; and we want downright facts at present more than anything else.—RUSKIN.

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## Original Communications.

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### PULMONARY CONSUMPTION.\*

BY GHISLANI DURANT, M. D., PH. D.

*Member of the American Medical Association, Member of the Medical Society of the County of New York, Fellow of the New York Academy of Medicine, Etc.*

“To give a careful collection and comparison of the latest views of theory and practice on pulmonary consumption,” which have been given to the public during the last decade, would be impossible in an essay, so numerous are they. But putting aside the obsolete views, the field narrows itself considerably.

In treating of an affection which, from the earliest times, has engaged the attention of the greatest intellects in the profession, I will take it for granted that the usual clinical order, of cause on the one hand and effect on the other, is already well known to any physician, and therefore does not need recapitulating here. Instead of occupying the narrow limits of

\*This essay was awarded a gold medal by the Alumni Association of the Medical Department of the University of New York in 1877.

this paper with anatomical details which may be found in any text-book, I will endeavor to confine myself to the practical side of the question, giving all the modern views, of which clinical history supported by observation has shown the truth, and thus arrive at a correct estimate of the pathological states, the necessary basis of all therapeutical indications.

Writers upon pulmonary consumption vary in their ideas of the nature of this disease, as their ideas in histology or pathology vary, though the latter is after all the starting-point of all the discussions. It is fortunate for the consumptive that there is a better agreement among his physicians at the bedside, than at the table of the pathologist. Usually the autopsy ends all discussion. As regards phthisis, on the contrary, "by the bedside there is a proper accord and understanding; the diagnosis, the treatment, and unfortunately the prognosis, are all the same; but discord and misunderstanding ensue immediately in presence of the diseased lung." (Grancher.)

Some regard tubercle as a specific lesion; others acknowledging that there is about it something of a specific nature, seek this—some in a specific cause, some in a specific product or growth in the lungs. Others still resuscitate in a measure the idea of Broussais, and regard tuberculous phthisis as a disseminated pneumonia; some regard granular and caseous tubercles as identical, while others think they are totally different.

Yet should anything be less a subject for controversy than an elementary form, or the presence or absence of an anatomical element? Aided, as the pathologist is to-day, by powerful optical resources, it would seem that his decision would be final, and yet all is contested and contestable. That which is strongly asserted by one, is as strongly denied by another; the elementary lesions, the pathological products which all observers acknowledge to be present, vary as they are seen through the microscopes of the different observers; and the pathological products which are regarded by one class of observers as the result of an ordinary inflammation, are thought by another to be those of a special cause.



Among the latest and most definite views on tubercle, and ones that it behooves us to consider, are those of *Virchow*. The author of *cellular pathology* regards tubercle as a new growth, and classes it among the lymph tumors. He shows that tubercle, from its very beginning, is composed of cells; and that it is developed either from connective or some closely allied tissue, such as false membrane, fat, or the medullary tissue of bone. It presents itself under two forms—the one cellular, the other fibrous; but these have so many features in common as unmistakably to imply their oneness; indeed, the fibrous is but the cellular form, slightly modified during its growth by external circumstances.

Tubercle rarely occurs singly. It is almost without exception multiple, occurring in nest-like groups close together. It increases in size by surface accretion, new nodules developing in the tissue around the older ones; and since this growth can take place on all sides about a center in the parenchyma of solid organs, the final form attained is round or roundish.

Whenever this growth of tubercle is unobstructed it presents a cellular structure, and a section will exhibit different stages of development:

*First.* There are the young embryonic elements, the cells which may be called indeterminate, such, for example, as those of the connective tissue in the colium proper.

*Second.* There are the determined or special cells and inter-cellular developments, which by their shape or arrangement give its particular character and form to the tissues to which they belong, as bone-cells to bone, cartilage-cells to cartilage, and tubercle-cells to tubercle.

*Third.* There are the forms presented by structures in process of disintegration, towards removal *e situ*, such, for example, as the dried, broken and granular upper scales of the epidermis, the degenerated fatty cells from mucous membrane, and the central fine granules of the tubercular débris.

These three ages of development are all most distinctly visible. Outermost lie the connective tissue cells in process of endogenous proliferation; next come the highest aimed

structures which the growth reaches, the cell forms most characteristic of it, which are disposed in an irregular ring round the center, and which doubtless multiply themselves by fissiparous development; and lastly, placed more centrally in the examples offered by tubercle in the stroma of solid organs, granular amorphous bodies can be seen, which might not be inaptly termed the products of the eremacausis or smoldering combustion of animal tissues. Commensurately with the age of the growth, these fine granules and fatty compounds, significant of the stage of decay, encroach upon and predominate over the cellular structures.

Virchow further asserts that when a caseous or cretaceous mass is presented for our examination, we are not justified in deciding upon its pathological nature, from our knowledge of its mode of origin alone. If there be, neither in nor about it, no appearances which correspond with the structures above described, then we have no right to pronounce it tubercle.

From the analyses of a number of observers, Bennett\* draws the following conclusions:

*First.* That tubercle consists of an animal matter, mixed with certain earthy salts.

*Second.* That the relative proportion of these varies in different specimens of tubercle. That animal matter is most abundant in recent, and earthy salts in chronic tubercle.

*Third.* That the animal matter certainly contains a large amount of albumen. Some chemists have also detected casein, the existence of which is probable; others gelatine, the presence of which is more doubtful. Fibrin and fat exist in small but variable proportion, as a constituent of tubercle, the latter increasing as the disintegration of the tubercle progresses.

*Fourth.* The earthy salts are principally composed of the insoluble phosphate and carbonate of lime, with a small proportion of the soluble salts of soda.

\* Bennett, J. Hughes. *Pathology and Treatment of Pulmonary Consumption.* Edinburgh, 1859.

*Fifth.* That very little difference in ultimate composition has yet been detected between recent tubercle and other albuminous compounds.

If, from the histological facts previously stated, we seek to deduce the nature of tubercle, it can scarcely be doubted that it is an exudation of the liquor sanguinis, but one which presents marked differences from the simple or inflammatory exudation on the one hand, and the cancerous on the other.

The peculiarity of phthisis, as considered by Bennett, is that an excess of acidity exists in the alimentary canal, whereby the albuminous constituents of the food are rendered easily soluble, whilst the alkaline secretions of the saliva and of the pancreatic juice, are more than neutralized and rendered incapable either of transforming the carbonaceous constituents of vegetable food into oil, or of so preparing fatty matters introduced into the system as will render them easily assimilable. Hence an increased amount of albumen enters the blood, and has been found to exist there by all chemical analyses, while fat is largely supplied by the absorption of the adipose tissues of the body, causing the emaciation which characterizes the disease. In the meanwhile the lungs become especially liable to local congestions, leading to exudation of an albuminous kind, which is tubercle. This, in turn, being deficient in the necessary proportion of fatty matter, elementary molecules are not found so as to constitute nuclei capable of further development into cells; they, therefore, remain abortive, and constitute tubercle corpuscles. Thus, a local disease is added to the constitutional disorder, and that compound affection is induced which we call phthisis pulmonalis, consisting of symptoms attributable partly to the alimentary canal and partly to the pulmonary organs.

After characterizing the dogma of Laënnec as "an hypothesis which has been overthrown by the later investigations in pathology," (page 2), *Niemeyer*\* starts with the assertion that "everything which, since the time of Laënnec, has been re-

\* Clinical Lectures on Pulmonary Phthisis. Translation. New York, 1868.

garded as infiltrated tubercle of the lung, is the product of chronic and especially catarrhal pneumonia," (page 3), and makes every fact yield to this *a priori*. The so-called catarrhal pneumonia—the caseous, tubercular, epithelial, disseminated, and chronic pneumonia of other authors—the result of an accident, as a cold or other local irritant, he regards as an evil to be feared above all, since it possesses the singular property of determining tubercle, not only in its vicinity but throughout the entire organism. It is, by the softening and expulsion of the products of this pneumonia, that cavities are formed, and that phthisis, as Niemeyer understands it, is produced. But, he adds, "the greatest danger for most phthisical patients is that they may become tuberculous" (page 19). We must then always bear in mind that "a tuberculosis may be developed in the course of a pulmonary phthisis, caused by pneumonic processes" (page 98).

But we are not to regard this complication of caseous pneumonia by tubercles as an accident, for "we are forced to admit a causal relation between the tuberculosis and the nutritive disturbances, which ordinarily precede the same. We are entirely confirmed in this causal relation, when we consider the distribution of the tubercles in the lungs of phthisical patients. If there are but few tubercles present, they are found for the most part entirely in the neighborhood of cavities or caseous masses; and if they are scattered over the whole lung, we can not as a rule but see that their extension has proceeded from those points, because there we find the most numerous, and as it appears the oldest nodules" (p. 22). Nothing can be more definite than this statement.

We must consider very carefully the nature of this catarrhal pneumonia, since it not only produces tubercles but is itself produced by them. Niemeyer concedes the latter point, in deference "to the prevailing views," and acknowledges that in a certain number of cases, "*the development of tubercle has preceded the pneumonic processes*, and that the existing cavities are due in part to the softening and emptying out of tubercular conglomerations, and have been gradually enlarged by the

softening and throwing off of tubercles, which have continued to be found in their walls" (page 7). Tubercles and catarrhal pneumonia, then, behave in exactly the same way.

We have just been told that individuals suffering from catarrhal pneumonia will, sooner or later, develop tubercles, and that tuberculous subjects will contract catarrhal pneumonia. "Since we have already made the assertion that acute catarrhal pneumonia may, even in persons of previously healthy lungs, lead to caseous infiltration, we must add that those persons who have already previously suffered from catarrhal pneumonia resulting in condensation, and who have caseous masses or cavities in the lungs, are much more liable to have subsequent attacks of acute catarrhal pneumonia take the same termination. In the description of the different forms which phthisis can assume, we will mention cases in which the patients are attacked again and again with acute catarrhal pneumonia, and in which every new attack of this disease leads to an acute extension of the condensation and destruction of the lung, until finally the patients succumb to a last attack, or die of secondary tuberculosis" (page 14).

Even if we admit that pneumonia is entirely different anatomically from tubercle, would it be a sufficient reason for separating it from the other, and making it originate from an entirely different cause? There is no better refutation of Niemeyer's theory than the one he gives himself, and gives most clearly and concisely. "The frequency of this complication" (tubercles and caseous products in the lungs of phthisical patients), "and the evident dependence of the tubercular development on the morbid nutrition in the lung, has doubtless materially assisted the formation of Laënnec's doctrines. It was not very difficult to draw, from this condition of things, the conclusion that the inflammatory process, and the morbid formation appearing in the form of miliary nodules, were to be considered as different degrees or stages of development of one and the same disease. Moreover, the different anatomical appearance of both of these forms of morbid nutrition was by no means opposed to this construction. If we have no

hesitation in referring to one and the same constitutional disease, the syphilitic inflammation and those syphilitic growths diagnosed gummy tumors, then we should make no objections when the pneumonic process and the tuberculous formations, which are so often together, are referred in the same manner to the common source of a general constitutional disease" (p. 22).

After stating (page 135) that it was upon ideas advanced by himself, as early as 1856, that Niemeyer based his deductions regarding consumption, *Buhl*\* gives as the most important process of all, the foundation, the *causa proxima* of phthisis, *parenchymatous* or *desquamative pneumonia*, with its differences in course, grade, and form. Immediately following this are the closely related forms of *peribronchitis*. Other inflammations of the lungs, as compared with these, are not only far behind, but their causative relation is even denied.

I could not give a better resumé of this author's views than the following:

"If now you review the symptoms of pulmonary phthisis, you will see that it is not possible for me to agree with the clinical pictures which Niemeyer has drawn, for they depend on false conceptions.

"In the *first* place, he declares that a croupous pneumonia, in which the fever lasts over the second week, has run into a cheesy pneumonia. I have sought to show that this never occurs; but that such a case was a desquamative pneumonia from the very beginning, and should have been diagnosticated in the very first days by a microscopic examination of the sputa.

"*Second*. He holds that pulmonary hemorrhage is primary, and the cheesy pneumonia the result. I have endeavored to point out that a pulmonary hemorrhage can not cause a cheesy pneumonia; and that in those cases where phthisis is observed to follow hemorrhage, the beginning of the former must be referred back to a point before the advent of the first bleeding.

\* *Buhl*. Inflammation of the Lungs. Tuberculosis and Consumption. Translation. New York, 1874.

"*Third.* He presupposes an acute bronchial catarrh. I have effectually shown that phthisis can not arise from catarrh, and that in this case, one of the two deep-seated and severe diseases, either desquamative pneumonia or peribronchitis, have been confounded with the catarrh.

"*Fourth.* He pictures to us a chronic catarrhal pneumonia. But such a condition does not exist. What Niemeyer called by that name was generally pulmonary cirrhosis, or cheesy lobular pneumonia from peribronchitis" (page 159).

According to *Perroud*,\* the elements capable of undergoing transformation into tubercle are the white globules or leucocytes, epithelial cells, fibro-plastic elements, medullary cells, and blastema. The same author, in studying the process of tuberculization, how it is that certain elements are transformed into tubercles, taking into consideration the most recent developments, both microscopical and chemical, has arrived at the conclusion that the first step toward this change is the death of the normal tissue, and following this decomposition of the effete material. Nature now attempts the removal of these products; the fatty portions are, in a measure, separated from the proteine elements; alkaline fluids are poured out to form a soap with the fatty materials, in the same manner as the dead fetus *in utero* is removed, and as fat is found in the cadaver. Certain portions are thus rendered capable of absorption, and there remain dessicated mummy-like elements, to which are added, later on, pigment granules and calcareous salts.

Unfortunately, however, this reparative process but seldom occurs. The neighboring tissues, irritated by the presence of tuberculous masses, pour out their secretions abundantly, and the tubercles instead of drying, swell up, and increasing greatly in size assume the appearance of pyoid globules. This is what is called the softening of tubercle. When the disorganization has reached a more advanced stage, only granulations, the remains of the tuberculous histological element, are seen.

\* *De la Tuberculose et de la Phthisis Pulmonaire.* Prize Essay. Paris, 1861.



The following aphorisms, in respect to tissue metamorphosis, are given by *MacCormac*,\* as illustrating the production of tubercle:

A ceaseless process of integration and disintegration goes on amid the living organism, to which we apply the term tissue metamorphosis.

Of this metamorphosis there are two kinds—one direct, the other retrograde; one the integration, the other the disintegration.

Direct metamorphosis is the formation of living tissue, of blood, of bone, of nerve, of flesh.

Retrograde metamorphosis is the disintegration, after vital action, of living tissue, of blood, of bone, of nerve, of flesh, and its conversion, through the medium of the blood, into interstitial or metamorphic waste.

Food supplies the ingredients of the one; the used tissues constitute the material of the other.

Waste and supply are mainly, though not always, coequal. If, however, the waste do not correspond with the material supply, or the material supply correspond with the waste, disease or death must, in no long period, sooner or later follow.

In any and every case, new material must replace healthily, the old material. But there can be no healthy substitution of new material for old material, if the oxidation be insufficient.

The waste carbon, and to a certain extent the waste hydrogen, is mainly eliminated through the instrumentality of the lungs. If it be not eliminated, it is death.

If the waste or retrograde metamorphic tissue, on the other hand, be not got rid of adequately, it is likewise death, sooner or later death, from the retention of that waste.

Tubercle, then, with all the diseases and all the mortality that accrue from it, is entirely ascribable to the imperfect discharge, in other words to the arrest, of the metamorphic waste. For tubercle is but the retained carbonaceous waste, while conversely, the retained carbonaceous waste is tubercle.

\* Fifty Aphorisms, read before the Glasgow Medical Society, March, 1864.

We can sum up MacCormac's work on consumption, as the author does himself, in half a dozen lines:\*

"Wherever the air habitually respired has been respired, in whole or in part, before, there, tubercular deposits are found; and wherever the air habitually respired has not been respired, in whole or in part, before, there, tubercular deposits are impossible, and consumption and scrofula are unknown."

*Villemin*† returns to the views of Laënnec and Andral regarding the unity and specific nature of tuberculosis.

The matrix of the different varieties of tuberculous matter, is the different kinds of connective tissue. Caseous matter, though oftenest found in tuberculous deposits, does not belong exclusively to them.

The lymphatic tissues—the closed follicles, ganglia, adenoid tissues, spleen, etc.—are very frequently the seat of tubercles.

The tubercle of the osseous tissues is the result of cell proliferation in the marrow.

Tubercle in the lung has its seat in the fibrous interlobular connective tissue, but it most frequently fills as well the pulmonary vesicles, originating in that case from a proliferation of a connective tissue in the membrane which forms the walls of the alveoli. The intravesicular tubercles undergo, perhaps more frequently than elsewhere, a premature retrograde metamorphosis.

The tuberculous products seem to engender in their neighborhood an infectious emanation, which gives rise to a progressive extension of the morbid process, and development of new granulations in the vicinity of the older nodules.

Fatty liver seems to be a direct effect of tuberculosis.

An alteration of the lymphatics, similar to that occurring in glands, has been observed in tuberculosis.

A resumé of the author's opinions is given in the following propositions:

\* Consumption: its Prevention and Possible Cure. Second Edition. London, 1865.

† Etudes sur la Tuberculose. Paris, 1868.

1. Like zymotic diseases, tuberculosis is but seldom met with on high altitudes.

2. The disease increases proportionally with the aggregation of masses, occurring most frequently, therefore, in large manufacturing and commercial cities.

3. It attacks individuals who live within confined precincts, as in convents, prisons, barracks, etc.

4. It is rarely found among those living apart, or leading a savage or nomadic life.

5. Tuberculosis, so common among troops living in barracks, rarely occurs during a campaign.

6. When, in small ill-ventilated houses, there are many dwellers, there will be developed, as a consequence, several cases of tuberculosis.

7. Phthisis, formerly unknown among the Indian tribes of America and the inhabitants of Oceanica, has become, since the advent of the European among them, their great destroyer.

8. The phthisis of bovines, like that of man, is multiplied by confinement and aggregation.

9. The antagonism which seems to exist between malarial fevers and phthisis, is due to the fact that malaria occurs chiefly among the inhabitants of sparsely settled districts.

10. The contagious character of phthisis has been affirmed in all ages, both by popular credence and by careful observers.

11. Tuberculosis is developed and propagated under an assemblage of conditions analogous to that producing zymotic diseases. Hence, we regard the cause as specific, and as multiplying and transmitting itself under the above conditions.

*Boyer*\* regards tubercle as an accidental product, formed by an osmose through the capillaries of a plasma containing an excessive amount of gelatinous moleculi, which have a marked tendency to absorb phosphatic salts. Tubercle develops by epigenesis in the midst of tissues pushed away, but not destroyed. Any cause which produces pulmonary congestion

\* *Guérison de la Phthisie Pulmonaire.* Paris, 1868.

may occasion a deposit of gelatiniform granulations in the respiratory organs. Pulmonary phthisis is characterized by the presence of tubercles in the lungs, the softening of the tubercles producing cavities. Calcareous and cretaceous concretions are the same alteration, but in different stages of solidification. Bones, before assuming the cartilaginous state, contain the same elements as incipient tubercle, albumen, fibrin and gelatin; later on, the same principles as crude tubercle. Tubercle, like bones, passes through three stages of growth. The blood contains all the chemical elements of the organism, at all periods of life; it contains gelatine and calcic phosphate in definite proportions. Phthisis being due to an insufficiency of calcareous salts in the blood, give calcic phosphate and carbonate, and soda bicarbonate, and you cause induration of the tubercles.

*Dr. Williams*,\* of the Brompton Hospital, recapitulates as follows: "Pulmonary consumption arises from a decline or deficiency of vitality in the natural bioplasm or germinal matter; and this deficiency manifests its effects, not only in a general wasting or atrophy of the whole body, but also in a peculiar degradation (chiefly in the lungs and lymphatic system) of portions of this bioplasm, into a sluggish, low-lived, yet proliferating matter, which, instead of maintaining the nutrition and integrity of the tissues (which is the natural office of the bioplasm) clogs them, and irritates them into a substance, which is more or less prone to decay and eventually involves them also in its own disintegration and destruction. This degraded bioplasm, which I will call phthinoplasm—(from 'phthisis,' I waste, a wasting or decaying forming material)—may be thrown off locally as a result of inflammation, or it may rise more spontaneously in divers points of the bioplasm in its ordinary receptacles, the lymphatic glandular system; and then it commonly appears in the form of miliary tubercles, scattered through the adenoid tissue of the lungs."

\* *Pulmonary Consumption.* London, 1871.

Inflammation is regarded by *Dr. Loomis\** as the great element of destruction in pulmonary phthisis. He further says, "that the varying proportions in which the different types of inflammatory changes exist in different causes, combined with their different stages of evolution, account for the varying appearances presented by lungs in one case of phthisis as compared with lungs in another. That all these changes can be arranged under the head of inflammation, and that they only differ according to the primary seat and character of the inflammatory process."

In the one class of cases, the primary changes are in the cavities of the alveoli and bronchi, and are epithelial and cellular in their nature—*catarrhal phthisis*.

In another class of cases, the primary changes occur in the bronchial and alveolar connective tissue; the connective tissue hyperplasias may be nodular, linear or massive—*fibrous phthisis*. In still another class, the primary changes may occur in the lymphoid elements of the lung—*tubercular phthisis*. All these three forms may occur either separately or together.

In his last work, *Pidoux†* considers pus, tuberculous and caseous matter, as three distinct yet analogous products. He regards the second and third as less organized than the first, their life very short, and therefore their multiplication correspondingly rapid. They are without blood vessels and nerves, poorly formed, and prone to degenerate.

Histologically, pus-cells and the white blood globules are identical; they are leucocytes—the sarcophytes of Williams, and bioplasts of Beale. Both present themselves as round cells, composed of a thin layer of cell substance, inclosing several nuclei. They differ only in that the latter have in themselves, and surrounding them, the elements necessary for their growth and development into organic tissues, while the former have, in and around them, the elements which will

\* Lectures on Diseases of the Respiratory Organs, Heart and Kidneys. New York, 1875.

† Etudes Générales et Pratiques sur la Phthisis. Prize Essay. Paris, 1874.

cause them to undergo retrograde metamorphosis, to descend in the organic scale; the one of necessity lives, the other dies.

Therefore, it is only as embryos that pus-cells and white globules resemble each other. Hour by hour, as they follow their opposite courses, the difference between them becomes more marked. In the one which is to become a pus globule, the number of nuclei increases; in the leucocyte, which is to constitute perhaps a portion of normal tissue, possibly in the vessels a red blood corpuscle, their number diminishes.

As the pus globule progresses in its downward course, the nuclei increase in number and decrease in size. Nucleoli, if present, are only outlined, often imperceptible; thus, at the best, the life of the pus globule is short. If, however, they are rapidly developed, the albuminous fluid in which they float is absorbed, the cells lose their rounded shape, shrivel, dry up, and appear as a confused mass of irregular corpuscles, and becoming a cheesy-like mass, it receives the name caseous.

The change can go a step further, and the calcareous succeed the caseiform. This may be because the mineral matters are the only ones that can not be absorbed, or that they are the last deposited.

As the caseous product is the residue of the retained pus, in which all cell proliferation has ceased, so it is the ultimate and almost constant phase of tubercle, which, like pus, is born only to degenerate and die.

Tubercle may be regarded as an embryonic cell, which, its development being suddenly checked, becomes atrophied and reduced to the lowest possible state of vitality. The cells of tuberculous granulations resemble so closely those found in healthy lymphatic ganglia, that it is difficult to distinguish the one from the other. Virchow, who pointed out this resemblance, has called attention to another fact not less important. "If you compare," says he, "the cells which I regard as constituting the tuberculous matter with a normal tissue of the human body, you will see that those cells have the greatest analogy with the elements of the lymphatic ganglia—an anal-

ogy which is neither accidental nor indifferent, since the predisposition of the lymphatic ganglia to undergo the caseous transformation has long been known."

Tuberculous granulations are developed in the beginning at the expense of the connective tissue. For a time they replace the cells of the plastic and fundamental tissue, and all the elements of which it is the matrix; but as they can not finally replace these cells, destruction results. We know already that reparative neoplasms are all produced by an extraordinary proliferation of the connective tissue. Tuberculous irritation either destroys that tissue, or substitutes for it elements which die as soon as born, and so can not reproduce healthy elements as is done in simple inflammations.

Bayle, Laënnec, and their followers, had pointed out the difference between the gray, semi-transparent granulations, and the rounded yellowish mass resembling cheese of poor quality, or a kind of putty, to which they gave the name tubercle. The latter presents itself under two forms—first, as masses varying in size from a pea to a small nut; and, second, as amorphous particles, disseminated throughout the tissues and known as infiltrated tubercle. At that time no essential difference was known to exist between this production and the gray granulation. Both were tuberculous products, and the disease, of which they formed the anatomical elements, was pulmonary phthisis. Reinhardt has since shown that the result of arrested and non-evacuated suppuration presents the same characteristics.

Caseous matter, the solid detritus of pus, and Virchow's fatty transformation of granulous matter, only differ in that the first and second are the product of a retrogressive transformation, while the third is fatty from the beginning, possibly on account of its seat in a muciparous membrane. This would explain why, when the tuberculous irritation has its seat in such a membrane, the caseous product is at once developed, whilst if connective tissue or serous membrane be affected, granulations, formed from atrophied cells, are produced. And, as the elements which make up the connective



tissue are better organized than those of the mucous membranes, and especially those of the pulmonary alveoli, which are of the simplest form, we can easily comprehend why the neoplasms of the connective tissue should have a more perfect and persistent form than those developed in a membrane.

Therefore, the absolute difference found to exist between phthisis and tuberculosis, because the first gives rise to caseiform and the second to granular products (Niemeyer), is anything but demonstrated. There is every reason to believe that, at birth, the cells of the caseous products were organic, and more or less perfectly formed, but suffered fatty degeneration more rapidly than the tuberculous granulations of the connective tissue.

(To be continued.)

NEW YORK CITY.

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## BATHING, CUPPING, ELECTRICITY, MASSAGE.

A COMPARISON OF THE THERAPEUTIC EFFECTS OF BATHING, OF CUPPING OR ATMOSPHERIC EXHAUSTION, OF ELECTRICITY IN THE FORM OF GALVANISM AND FARADISM, AND OF MASSAGE, IN THE TREATMENT OF DEBILITIES, DEFORMITIES AND CHRONIC DISEASES.

BY DAVID PRINCE, M. D.

It is suspected that each specialist who relies upon one of these four agents, overestimates its relative importance, and that his consequent overpraise leads the general practitioner to despise these agents, all alike, as the hobby-horses of charlatans. It is attempted, in this short paper, to present their modes of action in comparison with each other, and to discriminate the conditions in which one is indicated in preference to another. It is believed that by securing to each its proper therapeutic position, it will have a stronger hold upon public confidence, and will therefore be oftener as well as more intelligently employed.

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Bathing is applicable in some of its forms to all conditions. The variety of its applications is attended by a corresponding capability of doing harm where it is intended to do good. It is applicable to inflammatory and febrile excitements with elevation of temperature, when so applied as to abstract heat directly, or so as to favor perspiration and evaporation, thus indirectly diminishing the temperature. It is applicable to cases of arterial capillary contraction and diminished temperature, acting by the direct impartation of heat and by the enlargement of the vessels for the supply of blood. It is efficacious in the removal of cutaneous obstructions to the transudation of effete material; and in wounds it protects the surfaces from the lodgment of the germs of putrefaction floating in the air, and thus acts as an antiseptic. This property may be reinforced by carbolic acid and salicylic acid.

The efficacy of bathing by immersion or by fomentation is such as to give the surgeon little concern, whether an injury is subcutaneous or open through the skin. Such is the antiseptic action of water perpetually changed and of water medicated with these acids and applied to wounds and to erysipelatous inflammations, as to diminish the importance of season and climate, in the estimate of danger. By what bathing is in itself, and by what it is the vehicle of, it occupies an exceedingly large space in the field of therapeutics.

Bathing is made the vehicle of heat and cold, from the utmost limits of endurance to the slightest variation from the existing temperature. When in either extreme, the action upon the nerves is that of a counter-irritant, and the action upon the vessels is to contract them, securing an arrest or a diversion of the flow of blood. When of a temperature near that of the surface, the effects are soothing upon the nerves and relaxing upon the vessels. The saline ingredients of the waters of various natural springs can be closely imitated by the addition of salts artificially prepared, but the charm of travel and of scenery can not be supplied by any artificial device devoid of the mystery of natural healing. A bath impregnated with the saline ingredients of sea-water ought to be as

efficacious as a bath in the sea itself, except that the appeals to the imagination constitute a part of the cure.

The application of hot air impregnated with vapor, simple or medicated, is generally intended to excite free perspiration and the elimination of all material capable of transudation. Mercurial and other medicated vapors are capable of imparting their ingredients to the system through cutaneous absorption.

Cupping, or atmospheric exhaustion, is familiar to every one when applied on an area of three or four inches, but when applied to a whole limb, or to the limbs and the whole trunk, it is chiefly known as it is practiced by some specialists. The amount of blood abstracted from the general circulation is incapable of accounting for the success of ordinary cupping in relieving pain; and from the similarity of the result to that of counter-irritants, this agent must be classed among them. When, however, a whole extremity or any considerable part of the body is made the field for exhaustion, the principle of action changes.

The presence of fluids within the vessels and within the connective tissue, as well as the tendency to the vaporization of gases condensed in these fluids, make, obviously, an influence to enlarge contracted vessels, and to loosen the tightness of contracted or hardened tissues. When applied to the trunk and limbs covering the whole body, except the head and neck, the lungs must be the first to feel the expanding effect, similar to that experienced in the ascent of high mountains, with the same danger of hemorrhage.

Junod's boot, a metallic inclosure for a leg or an arm, the air being withdrawn by an air-pump, has been used many years in France, and is recommended by Brown-Séquard in the treatment of peripheral paralysis. In this country the apparatus is extended so that in one form the trunk (up to the neck) is inclosed, and subjected to atmospheric exhaustion. This is manufactured and sold under a patent, though the chief details of this form of cupping have been previously executed in Europe. The extraordinary expectations encour-

aged by the manufacturers tend to discredit the good results rationally to be expected.

Employed on a large surface, atmospheric exhaustion is a valuable agent with a limited field of application.

Electricity, in its therapeutic relations, is now known under three names, employed to designate different modes:

1. Franklinism, or static electricity, denotes the agent as developed by friction. So little therapeutic use is now made of this form, that it will not be considered.

2. Faradism, or induced electricity, named after Faraday, its chief discoverer, is now more used than any other form, chiefly on account of the cheapness of the apparatus by which it is developed, and the very sensible effects of its application. If a careless writer speaks of using electricity, it may be assumed that this is the form understood.

3. Galvanism is current electricity, as developed by chemical action.

In accordance with these terms are the names of the therapeutic processes. Faradization and galvanization are capable of affecting the deepest parts as well as the most superficial, and the most primary acts of tissue change. Functions sluggishly performed can be stimulated to greater activity whether the defect be in muscular motion, nervous sensation, vascular supply, quantity and character of secretion, or the quality of the nutrition. The application is therefore very varied, but not without danger of misapplication and injury.

Faradization is the name adopted for the application of the induced current, which must be in shocks of rapid succession. The beginning and the end of each brief electric flow is attended by a shock, by which the muscles are thrown into a tetanic tension, and the sensitive nerves excited to their natural function.

Galvanization is the name adopted for the application of the continuous current obtained by the reinforcement of cells, the energy of one adding to that of the next, until a propelling force is obtained sufficient to overcome the resistance of the body. The continuity of the current may be interrupted

by the hand or by automatic mechanism, but its chemical power remains the same. When the force of the current in relation to its diffusion is moderate, a tendency to disintegration is produced with an increased vascular activity.

The most probable explanation of the relief of pain is, that the pain itself depends upon anemia of the nerves involved, and that the increased supply of blood, implying an expansion of the vessels, brings the function of the nerves to a higher level than that of pain. This is rendered probable from the experience, that pains attendant upon conditions of inflammatory congestion are liable to be aggravated by galvanization. Such is the tendency of the galvanic current to diffusion, in passing through parts of considerable depths, that a strong force is necessary to produce any marked effect. This implies that the current is spread out over several square inches of surface, so as to be borne without inducing the destructive action upon the skin dependent upon the confinement of the current to a small space.

On the other hand, when the therapeutic indication is the absorption of tissue, the current is confined to a small space by means of needles. Whether the points are applied upon the surface or introduced at whatever depth, a decomposition takes place, the oxygen and the acids going to the positive pole, and the hydrogen and the alkalies going to the negative. The one or the other set of results of decomposition can be secured by substituting a wet sponge for one of the needles.

If it is intended to produce the internal development of hydrogen, for minute separation of the constituents of formations, as in tumors and neoplastic deposits, the negative needle is employed, while a sponge upon the surface makes the positive pole, or center of direction for oxygen and acids. The needle inserted into the part to be electrolyzed may be an ordinary steel sewing-needle. This constitutes the negative apex of a cone, the positive base of which is the area of surface covered by the sponge, which, for the best action, should be placed upon the part of the surface opposite the

point of the needle. The electric force crowds to the point of the needle, making it unnecessary to insulate the metallic surface.

If oxydation and coagulation are desired, as in the treatment of aneurism by coagulation, the sponge is made the negative and the needle the positive pole. In this case the needle must be of platinum or gold, so as not to oxydize; a thin plating is peeled off by the current, and is therefore worse than useless. Between the extremes of destruction of tissue by the needle with a greatly reinforced current, and the feeblest molecular change secured by a current of feeble power, are all the grades of therapeutic application. Not to mention the surgical employment in the heated platinum wire by a current of large quantity, or in the needles introduced near each other for destructive electrolysis with a current of high tension, the range of therapeutic application is very wide.

The power of the interrupted current, either galvanic or faradic, to excite contractions in paretic muscles, and thus to aid in restoring their lost function, is well known, but the power of restoring sensation is not generally recognized. An observation upon this point was made upon the back of the hand of a gentleman, whose hand had been paretic for several months from what had been supposed to be a rheumatic attack. After partial restoration of function under the employment of the four agents—bathing, cupping, electricity, and massage—a careful observation was made at one of the sittings. The faradic current was made to pass through the insensible part without being felt by the patient. In a few seconds sensation was developed, and in a few minutes became uncomfortably intense.

Bathing and electric excitations are especially agreeable companions in the relief of a great variety of irritable conditions. The electric bath, whether topical or general, is a combination in which each agent favors the action of the other, in cases in which it is not intended to act primarily upon the surfaces. The effect of water is to diffuse the current, and to enable it to pass through the skin with very little



sensation, so that a patient thinks he is having a feeble application when it is really strong.

The combination of bathing is generally made with the faradic current for general application. It is not uncommon, however, to apply the galvanic current while a foot or a hand is in a bath, which is made one of the poles of the current. This method can be reversed, making a small region out of the bath the seat of one pole, while the general immersion gives the other pole a wide distribution.

Massage is now adopted as an arbitrary word, signifying friction, stroking, kneading, tapping, rolling, pinching, and passive movements, whether done with the patient awake or under ether; executed by the hand or by machinery, light in degree or carried to the extent of rupturing adhesions and elongating contracted muscles by short vibratory movements.

The principles are old, though the word employed to comprehend them is modern. The employment of friction by the hand, is a domestic procedure, in pains and cramps, so ancient and so universal as scarcely to be mentioned in systematic writings.

Friction is made by a rapid movement with light pressure, intended to develop heat in a part whose circulation is torpid from external cold or from internal causes; and when done by machinery, the presence of flannel or silk between the friction pad or brush and the skin, may be supposed to develop a static electric excitation favorable to the restoration of the function of impaired nerves. The efficient employment of friction by the hand is very tiresome, and when employed in a systematic way to improve a chronic condition a machine is almost indispensable.

Stroking is a combination of friction and pressure, generally secured by a movement of the hand in the direction of the cutaneous hairs. This method of massage is especially applicable to the back and to the voluminous portions of the extremities. If it is intended to give prominence to the element of friction, the hand of the masseur is either dry, or wet with alcohol, or some other penetrating or quickly evaporat-



ing liquid; but if pressure is intended to be predominant, the hand is lubricated with some oleaginous substance, which enables it to glide with the least resistance. As the hand passes slowly over the parts operated upon, a wave is produced which secures an alternate emptying and filling of the vessels of the stagnant organs. The influence of this method is felt not only in the parts subjected to immediate pressure, but in the adjacent organs. This is illustrated by the relief of stroking in lumbago and other forms of backache, in which the area of the comfort is more extensive than that of the application.

The process of kneading is the production of a pressure by the application of the hand or the closed fist, without gliding and in a gentle manner, over a portion of the body in alternation, as a baker kneads his dough.

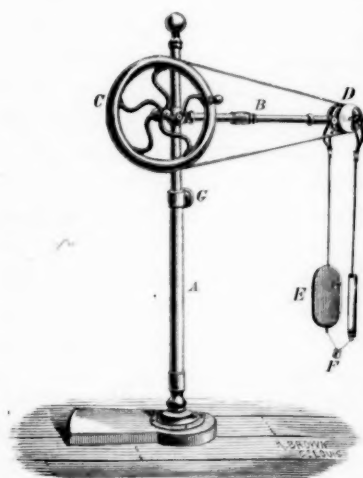
Tapping is best secured by machinery, as it is very fatiguing to keep up a sufficient prolongation of rapid and light touches by the hand. Rolling, however, being a slower proceeding, is easily effected by the hand. Pinching between thumb and fingers is generally employed for the purpose of securing reflex action.

The various passive movements may be executed by the hand, but they are more regularly and efficiently produced by machinery. The latter can be moved by a stupid person, by steam or by a water motor, leaving the operator free to guide the machine without fatigue, and thus to secure the full benefit of the application of the remedy. While it is possible to do by hand nearly all that can be done by machinery, it is safe to say that the use of the hand involves too much fatigue for general and faithful employment. Rapid vibrations or oscillations are beyond the power of the hand to accomplish. The acceleration of motion effected by machinery is necessary to a satisfactory result. The passive movements in imitation of the natural movements require skill when performed by the hand. The manipulation of the fingers, especially the stroking and kneading processes, can best be done by the hand of the operator. The movements of the fingers in the direc-

tion of flexion and extension, are best done by machinery. The rapid oscillations which are found of greatest benefit, can not be accomplished by the unaided hand.

The benefit seems to be derived from the acceleration of vital changes, similar to those which follow active exercise with those who are able to take it. A limb, useless through fancy, rigidity or palsy, has its tissues shaken by short and rapid vibrations, and there comes a more voluminous supply of blood, and a more responsive or a more equable innervation.

The most important applications of massage can be secured by the machine represented in the accompanying wood-cut:



A—A stand, capable of being lengthened, so as to control the height of the working portion of the apparatus.

B—Horizontal shaft, capable of being lengthened so as to keep the hand tight.

C—Wheel propelling the band which carries the small wheel.

D—The wheel which moves two friction pads.

E—Pads with wood foundation and leather-covered cushioning. In operation, those pads are covered by some fabric capable of being washed. One pad may be used alone, or it may be substituted by a brush.

F—An elastic rubber connection for controlling the position and relation of the pads.

G—A set screw, to hold the working part of the machine at a proper height.

A vibratory attachment for hand or foot is also run by the small wheel which carries the friction-pads, the latter being detached and laid aside.

The *Manipulator*, a machine for massage invented by Dr. George H. Taylor, of New York, and manufactured by Wood and Co., No. 17 East 58th street, is a machine of very varied adaptation. It is capable of being run by hand, and of accom-

plishing most of the work capable of being done by extensive machinery requiring steam power.

The introduction of machinery marks a new era in the employment of this therapeutic agent.

In a large portion of the chronic disabilities of the extremities, a contraction of the arteries is a marked condition. The supply of heat becomes insufficient to resist the temperature; new material is not readily laid down to take the place of that which is effete; hence, there is emaciation of muscles, of vessels and of connective tissue. The diminution of volume and the density of the structure of the connective tissue, result in stiffening of the joints, the surrounding loose tissue acquiring the hardness of natural ligament, in some instances resisting with more force than the strength of the adjoining bones, which latter become emaciated in substance though not diminished in size, through the same lack of supply of nutritive material. The nerves share in the atrophy of the connective tissue, the medulla becomes compressed, resulting in hyperæsthesia with diminution of proper function. Sometimes anæsthesia occurs, and between these extremes are various forms of perverted sensation. The motor function exhibits an equal variety of failures and perversions on a lower level of nutrition than that which gives it its natural trophic action. The skin shares in the same atrophy, its arteries diminishing and its veins becoming obliterated, the surface acquiring the appearance of cicatricial substance with a shining aspect.

This assemblage of conditions may be peripheral, or the sequel of an injury, or other local cause, on the one hand; or, on the other hand, central, the result of changes in the nervous centers, in consequence of which the arteries are made to contract under the irritation conveyed through the nervous distribution.

The arterial and the nervous systems react upon each other, the diminution of arterial blood lessening the nutrition of the nerves, and the consequent perversion of the nervous function inducing an increased contraction of the arteries. The influ-

ence of defective supply of arterial blood is illustrated by what is said of some devotees in India, who carry an arm elevated and deprived of its proper movements for a long time. The ascent of the blood in the arteries is retarded by the force of gravity, and its descent in the veins is favored, so that the limb emaciates and stiffens. The same result, in a minor degree, occurs as an incident to the treatment of diseases and injuries in which immobility and an elevated posture are preserved for many weeks. In these cases, the increased accumulation of blood attending the dependent posture becomes painful, and the diminished capacity of the capillaries to transmit the blood, and of the veins to return it, result in the effusion of serum, producing swelling and pitting, which are slow in being removed.

The recovery in such cases is generally greatly retarded by the unwillingness of the patient to submit to the pain attending the dependent posture, and the movements, the pressures, and the frictions, which should be employed to induce a better vascular supply. The heat and cold alternations by bathing, the atmospheric exhaustion or cupping, and the electric excitations, are all painful except in those conditions in which there is palsy of sensation of a durable nature. This explains the reason why so much advantage results from the occasional etherization of a patient whose fortitude is not equal to the emergency.

The treatment of diseases of this class is the opposite to that adapted to conditions of an inflammatory nature. In this latter condition the arteries are dilated, permitting too much blood to flow. Here the elevated posture, rest and arterial sedatives are appropriate, while in the former condition all modes of activity are useful.

The point of uncertainty with regard to the class of therapeutic agents most appropriate, is in the border-land between active inflammation and the passive condition which follows. There is too much blood in a part which is the seat of chronic inflammation, the vessels being both too large and too numerous. If too much activity attends the treatment, the acute

form of the disease is reproduced and great harm is done. All forms of massage are more likely to be followed by injury than is the employment of cold and heat in quick alternation. The agent next to temperature in bathing, which is most likely to contract the vessels without an unpleasant reaction, is the negative pole of a continuous galvanic current. The blood-vessels are inclined to contract at the same time that there is the production of a faint electrolysis, the oxygen and the acids being drawn away from the parts under treatment, very much as the abstraction of oxygen tends to quench a flame, while the hydrogen and the alkalies remain. These latter are incapable of inducing those chemical changes which develop heat, and hence the contra-stimulant effect.

The application of the positive pole would be likely to excite the inflammation to increased action. If, however, the case has passed entirely beyond the condition of heat, indicated by the disappearance of an elevated temperature, the positive pole may be found most advantageous. Where the progress of disease has passed to a condition of fitness for the positive pole of the galvanic current, it may be considered safe to employ massage, lightly and cautiously at first, and with more boldness as it is found to be safe.

An illustration is found in two hands presented for examination on the same day. One was that of an old man, with subluxation of the thumb of three weeks' duration, stiff, hyperæsthetic, and without elevation of temperature. The other was that of a youth of seventeen years, with subluxation of the wrist of several weeks' duration, the temperature being one degree higher than that of the opposite side. In the first case the skin had begun to be slightly glistening, while in the other case the skin presented its natural appearance, and was very slightly rounded up from swelling.

These two cases presented conditions very different, though the injuries were originally sprains. In the case of the youth, the activities were too great, requiring a reduction of temperature by cooling applications, with the greatest possible quietude of the inflamed parts; while the hyperæsthesia in the

other case was best controlled by raising the nutritive activity of the part. The nerves ceased to be painful and extra-sensitive as they became better nourished. Rubbing, pinching, and passive motion, the quick alternations of hot and cold water and electric excitation, all acted in the same direction, the only caution being in not carrying any of these applications too far at any time.

It sometimes occurs that lowered action is attended by *paroxysmal* elevations of temperature. The truly inflammatory action is attended by *persistent* elevation of temperature. In the temperature, more than in any other condition, is found the test as to the fitness of quiet and coolness on the one hand, or motion and heat on the other.

*Atrophy with Hyperæsthesia following an injury of the left ankle.*—June 9, 1870; Miss C. G., aged twenty years, received a severe sprain and perhaps a fracture of the left ankle, about two years ago. She never recovered, and for the last eight months she has lain in bed. The limb has generally been cold and blue, and subject to occasional attacks of heat, on account of which cold water has been applied, while during the time of coldness hot water has been found most agreeable. The general appearance of the patient is that of emaciation and feebleness, and she has partly lost the use of the right lower limb from long confinement. The foot is slightly swollen, and is everywhere sensitive to pressure. Movement is painful, and all these symptoms are most manifest in the toes. There is no voluntary power of moving the ankle or the toes. The foot is carefully carried upon a pillow, and she lives in constant dread of motion occasioned by the contact of objects, or the movements of her own body.

The interpretation of the case is that there was an injury followed by a condition of inflammation, and that in the process of recovery through the period of chronic subsidence, a hysteroid or other constitutional cause has led to an exaltation of sensitiveness to touch, leading to the quietude which favors diminution or perversion of function. The nourishment of

the tissues is supposed to be insufficient, and were it possible, the natural use of the foot would be the best remedy. The pain attendant upon any disturbance of the limb is sufficient to suppress any voluntary effort. It sometimes fails to be appreciated that when the nutrition of a nerve is below par, it is most painful. In this view of the subject, it is proposed to employ friction, passive motion, faradization, atmospheric exhaustion, iron, quinia and exercise.

The treatment was entered upon with the promise of the aid of the patient. The frictions were made daily by hand thoroughly smeared with lard, and the tolerance always increased with the progress of the rubbing. Junod's boot had the effect of reddening and warming the limb. The tendo-Achillis yielded with difficulty, and a very effective device was a swing in which the patient, in the sitting posture, rested the foot upon a vibrating foot-piece. This served to secure motion in the ankle-joint, and the vibratory motion gradually elongated the tendon. The improvement was very gradual, but without any period of retrogression. The treatment lasted thirty-seven weeks, and the restoration was finally complete.

There is no probability that the foot of this patient would have ever been restored to the function of walking without first disregarding the fear of pain by disturbing processes. The amount of time and perseverance is not appreciated by those who have not paid especial attention to the subject.

October, 1877.—The patient has remained in good health, with a good use of the foot.

*Perverted Innervation of right foot following Sprain, Hyperæsthesia and Swelling.*—September 3, 1872; Miss L. L., aged fifteen years, sprained the tarsus of the right foot one year ago, producing lameness which did not subside. Six months afterward the tarsus was sprained again, and the patient has not walked since.

Much swelling is said to have been produced by the first injury, and reproduced by the second sprain; but at the present time there is but little swelling, and no elevation of tem-



perature. There is tenderness on movement of the tarsal bones, and upon pressure over the tarsal joints. The foot is intolerant of the weight of the body.

The continuous galvanic current from seventy cells, for thirty minutes, diminished the hyperæsthesia and increased the sense of warmth, without increasing the heat perceptibly by the hand of another person.

September 7.—Galvanization is employed five minutes, and friction by the lubricated hand five minutes each day. Elixir of pyrophosphate of iron is employed for a tonic.

Sept. 14.—Some weight can be borne upon the foot.

Sept. 24.—She plays croquet without crutches.

Oct. 3.—The patient went home, walking without lameness.

April 15, 1873.—A letter states that there have been a few attacks of lameness of short duration.

October, 1877.—The patient made us a visit. She is now married, and has never had a return of lameness.

These two cases were treated without machinery adapted to the purpose of massage. Much labor would have been saved by such apparatus as has been referred to in this paper.

The modes of treatment discussed in this paper are not only not in antagonism with the treatment by medicines, but they are aiding and aided by an intelligent combination. It would be as reasonable to single out any medicine, and undertake to treat a great variety of diseases by it alone, as to apply indiscriminately either of these four remedies.

From this presentation of the subject, it is probable that a water-cure establishment without mechanical apparatus for massage, and a movement-cure without bathing and electric appliances, will come to be regarded as defective in the necessary range of application to the indications in chronic diseases, disabilities and deformities. The narrowest specialty is that of the exclusive treatment of diseases by the vacuum process. Its best effects are forfeited when the treatment is not combined with bathing, faradization, and massage. The cases in which the first is applicable (except ordinary small cupping) afford the indications for the other three.

The expense attending the procuring of a complete outfit for the employment of these agents, and the care necessary to keep them in order, must make it difficult to realize the best results except in institutions.

JACKSONVILLE, ILL.

## OLD AGE: ITS DISEASES AND ITS HYGIENE.

BY LUNSFORD P. YANDELL, M. D.

We are able to ascertain with sufficient precision what is the average duration of human life in any given community, but vital statistics have hitherto failed to determine the natural boundaries of man's earthly existence. They were declared by the patriarch to be three score years and ten,\* but the patriarch lived himself to nearly twice that age, and yet then, it was said of him, that his eye was not dim nor his natural force abated.† Tables of mortality show that of a hundred persons born in civilized countries, one half pay the debt of nature before they are ten years old; seventy die before they reach manhood or womanhood; and only six of the whole number are alive at sixty. Still it appears that in seven years, that is from 1838 to 1844, seven hundred and eighty people in England alone lived beyond their hundredth year. And Easton, in 1799,‡ published a list of seventeen hundred and twelve instances of longevity extending beyond a century.

The greatest age attained by any individual in modern times was one hundred and sixty-nine years. More extreme cases have been recorded, but Haller, who investigated them with great care, doubted their authenticity. In not a few of these instances, as has been said of Moses, there was no senile decay exhibited in life, nor was any found in the bodies of the old men after their decease. Thomas Parr, the Shropshire

\* Moses, Psalm 90. † Deuteronomy, 34: 7.

‡ Jameson's Changes in Human Body, page 298.

peasant, whose history is rendered doubly interesting by its association with Harvey, affords a striking example. He lived one hundred and fifty-two years and nine months, having enjoyed most perfect health until within a few days of his death, which was attributed to plethora of the lungs brought on by change of air and habits. His viscera were all sound and strong, and his heart was large and fat. The learned court physician could find in his organs no reason why he might not have lived many years longer if he had remained at home in the country.

Parr was a poor farmer's servant, and lived by his daily labor. His second wife, whom he married when over one hundred and twenty, reported of him that he never betrayed any signs of infirmity or age during the twelve years they lived together. Charles I. was curious to see so rare a specimen of manhood, and invited the old peasant to London, where he was treated in so royal a manner at court that a congestion of his lungs was induced which soon terminated his life.

Henry Jenkins, a fisherman, who reached one hundred and sixty-nine years, was still able to swim across rapid rivers after he had gone beyond a century.

Draakenberg, a Dane, resolved to get married, settle down, and "lead a tranquil life," after having spent one hundred and eleven years of it principally in the army; and outliving one wife, a woman of half his age, he sought, in his one hundred and thirtieth year, the hand of a young country girl, but finally, after several rebuffs, concluded to remain single, and in that state lived to see his one hundred and forty-sixth year. He is described as having been a man of "rather violent temper," and of great bodily strength, many proofs of which he exhibited during the last years of his life.

Effingham, of Cornwall, died in the one hundred and forty-fourth year of his age, having hardly known what sickness was up to his one hundredth year, working to the last as a day laborer, and walking three miles only eight days before he died. Stender, of the Duchy of Holstein, who reached

his one hundred and third year, it is said, "was never sick, and could never be put out of humor."

A remarkable instance of longevity was reported by Dr. Ornstein, surgeon-in-chief of the Greek army, a year ago. Stravarides, a Greek, died toward the close of 1876, at the age of one hundred and thirty-two years. His history was that he had led a rather intemperate life, consuming daily more than one hundred drachms of brandy, and yet, up to the time of his death, he was in possession of all his senses and still retained his teeth. He was also quite active, dancing when intoxicated. He was born twenty-six years before the great Napoleon, and witnessed the reign of nine sultans.\*

The natural duration of man is conjectured by Hufeland to be two hundred years, the life of animals being, as a rule, eight times the period of their growth, and man reaching maturity only at twenty-five.† But there is the serious difficulty in the way of this hypothesis, that no human being since the age immediately succeeding the flood has attained to two hundred years. Abraham reached only to one hundred and seventy-nine, and Jacob, the most aged of the patriarchs, only to one hundred and eighty.

In truth, we have to confess that we know not what is the natural term of human life. We are unable to explain these cases of extreme longevity; nor can we tell why the duration of life varies so much among animals, why the swan and the crow among birds, for example, are "many wintered," while the domestic fowl, which matures at the same age, lives only a few years.

As to the average age of the human race, that depends upon conditions well understood. Climate, personal habits, occupation and modes of life, are known to be vastly influential; but of these centenarians it appears that one at least was an inhabitant of Jamaica; most of them were peasants, but Hippocrates, a student and a philosopher, was of the number; generally they were of peaceful tempers, but one cer-

\* New York Medical Journal, January, 1877.

† Art of Prolonging Life, page 91.

tainly was irascible, and another spent sixty-seven years of his life exposed to all the dangers and excitements of war.\*

But, though unable to account for longevity, or to recognize the stamina upon which it depends, we know that it is hereditary. Parr had a great-grandson, at Cork, who lived to be one hundred and three years old. Dr. Rush says he never met a person over eighty whose ancestors were not long-lived. Any one who has looked through the inscriptions in ancient churchyards, must have remarked how much long life runs in families. At the same time, there can not be a doubt that they are most likely to attain it who observe the laws of health in youth and manhood. Of all Haller's aged men not one, it is affirmed, was an idler. Some were fond of strong drink, but as a rule they did not indulge until they were far advanced in years. The dissipated young man may assuredly know that he is drawing a blank bill on the future which is sure to come up, and may have to be met before he is old.

The *senectus* of the ancients may be expected, usually from fifty-five to sixty; the *ætas decrepita* is not often delayed beyond eighty, though either may be postponed long beyond their time, as we have seen, and may be brought on prematurely. A number of the old men mentioned were young, as well in feeling as in constitution, at eighty, and some when they had advanced far beyond a hundred; but the large majority of the race grow old before their time. Hufeland reports the case of a man dissected by him who, at the age of forty, exhibited all the signs of bodily decay. His hair was gray, and even the cartilages of his ribs were ossified, as they are found to be in old subjects. A still more extreme case was that of the young king of Hungary, Louis II., who was crowned in his second year, succeeded to the throne in his tenth, had a beard at fourteen, was married before he reached fifteen, was gray at eighteen, and died worn out before he was twenty years old.

\* This was a Prussian soldier, who was in seventeen general actions; had his horse shot under him, and was repeatedly wounded; was three times married after he retired from the army, the third time in his one hundred and eleventh year.

The evidences of decline appear first in the hair, which begins to frost or grow thinner, and to lose something of its luster; at the same time the skin shows a little less of the glow of youth, and the eyesight is not so perfect. The step has become somewhat less elastic, and a little later some waning of the memory is observed, resulting from incipient changes in the structure of the brain. To these indications of decay succeed in most men more or less trouble in the urinary function. Micturition is performed with less ease, owing to enlargement of the prostate gland, and must be repeated oftener. The urine is charged with the lithates, in consequence of imperfect oxydation, and is voided in larger quantities. The enlargement of the prostate may aid in the retention of the urine, and thus, up to a certain point, be a convenience, but when it becomes excessive, terrible suffering results from it.

In this first epoch of declining age, grave changes often occur also in the arteries, the coats of which become atheromatous and brittle. Degeneration in the heart, lungs and kidneys, is an event to be apprehended; and diabetes, albuminuria, asthma, angina pectoris, dropsy and apoplexy, are diseases incident to this period of life.

As years accumulate decrepitude comes on, and though the thoracic and abdominal viscera escape disease, time never fails to exhibit its force in the muscular and nervous systems. The "lean and slippered pantaloons" is associated with a brain in which the cells are no longer connected by a perfect interlacement; but their "spur-like processes are worn through, and the cerebral cell is rounded and club shaped."\* The memory decays until it is finally lost. The hand is tremulous, coördinated movements are badly executed, and the old man totters as he walks. Portal compares the nerves in aged persons to the branches of a tree covered with moss, and he also held that their brains are contracted and hardened; but oftener, it seems, the change is of the opposite character.

† Fothergill. *Hand-Book of Treatment*, page 166.

Galen regarded the period of old age as a continued dis-temper, and it is well for old men, however healthy they may seem, to remember that their systems, as was said by Bacon, are "towers undermined;" for with those latent changes constantly going on in the arteries, heart and brain, they may be constantly exposed to sudden death. Apoplexy may result from straining, as in the act of defecation, and fatal syncope may be induced by a fit of passion. John Hunter was aware of a disease of his heart by which his life was threatened at all times, and which any violence of feeling might render fatal; and yet he suffered himself to be drawn into an angry dispute, in which he fell down and instantly expired.

Sir A. Cooper refers to a case in which, with ossification of the coronary arteries, the coats of the large arteries were so thin that they were with difficulty removed from their places, and broke with the slightest mechanical pressure. Dr. Mounsay, who died in London, in the ninety-sixth year of his age, toward the close of the last century, was confident, from certain symptoms with which he suffered, that he had ossification of the heart, and left his body by will to be dissected. Ossific patches were found, not only on his heart, but on the aorta and the pulmonary artery; all the valves of the heart were extensively ossified, and the iliac and femoral arteries and their branches, extending down to the toes, were nearly continued tubes of bone.\*

Of few men can it be affirmed with truth that "of no disease they died, but hung like autumn fruit that ripened long." The great majority are cut off prematurely by disease or accident. The diseases of declining life may be inferred from the account given of the structural changes of the body which occur in old age. How to avert or alleviate them is the interesting question which hygiene proposes to solve.

"We are continually surrounded," says Hufeland, "by the friends and the enemies of life; he who keeps company with its friends will become old, but he who prefers its enemies will shorten his existence." It has been remarked of nearly

\* Jameson. *Op. cit.*, page 147.



all the instances of extreme longevity that the subjects were of a cheerful temper, loquacious, hopeful, susceptible of love and joy, and insensible to the impressions of hatred and avarice. In other words, their digestion was good; for it is impossible to suppose that such a temper could ever consist with dyspepsia. Imperfect mastication resulting from loss of teeth is often the cause of indigestion in the aged, and is to be remedied by good cooking, one object of which is to soften the food and prepare it for the action of the digestive fluid in the stomach.

Constipation, which is a frequent trouble of old age, also interferes seriously with digestion. I have for many years prescribed and used myself with great advantage a weak solution of common salt to keep the bowels open. A draught of two or three tumblers of a solution not strong enough to offend the stomach, and drunk before breakfast, seldom fails to procure a free evacuation, without any of the tenesmus which is apt to attend the operation of laxative pills. But an occasional Cooke's pill I have found to produce a very pleasant effect when what is known as a "bilious" state of the system prevails, as it is apt to do in old persons. My old friend, after whom the calomel, aloes and rhubarb pills are called, relieved many a case of dyspepsia by them in the course of his long practice.

Apoplexy, as has been remarked, is eminently a disease of advanced age. Of the persons who reach seventy in London, and no doubt it is equally true of most cities, one-fourth are shown by bills of mortality to die of apoplexy, or paralysis, which is its result. Heberden declared that the number of cases of this disease was doubled in London during the eighteenth century; and there is reason to believe that it everywhere increases with advancing civilization. By keeping the bowels free, one source of danger is obviated in the crippled condition of the arteries which makes an attack imminent.

The enfeebled power of generating heat renders aged persons extremely sensitive to cold, and liable to the complaints which cold engenders. Many old people, especially among

the poor, fall victims to pneumonia every winter. Dr. Cooke, just referred to, long a teacher of medicine in Kentucky, had repeated attacks of pneumonia, and finally died of one brought on by exposure to cold on his farm. If he stood on a cold pavement, at any time, until he began to shiver, he was sure, as I have often heard him remark, to have an attack.

With old people one great study is how to keep warm in cold weather. Boerhaäve, it is related, renewed the vigor and activity of an old burgomaster by having him to sleep between two young persons. A hot brick to the feet at night aids greatly in maintaining the heat of the body, and in this way favors sleep. Among modern inventions I know few which have added more to the comfort of people of every age, who find it necessary to be out on the cold, sloppy ground or pavements, than gum elastic overshoes.

The ancient Romans, it has been stated, prolonged their lives by retiring to Naples, as soon as they felt the infirmities of age coming upon them. We have in the southwestern part of Texas, around San Antonio and Seguin, an elevated and healthy region to which the aged of our colder states might find it advantageous to retire during the winter.

Many old men endure a large amount of unnecessary suffering, especially in the urinary organs, from an apprehension that their infirmities are the inevitable results of age. A medical adviser will put them in the way of mitigating evils which can not be entirely overcome. Even so grave an affection as diabetes may be benefited by a proper regimen. The troubles connected with making water may be overcome, to some extent, by instruments. The calculous diathesis may be corrected by proper treatment, and the bladder rendered tolerant of a stone by alkalies. Sir A. Cooper relates a case in which a country parson, with a calculus in his bladder, was able to go fox-hunting under their use, and even persuaded himself that the stone was gone. By early attention, the calculus may be discovered while it is small and removed by a comparatively painless operation. Dr. Franklin's last years were embittered by a stone in his bladder. Dr. Physick, to-

wards the close of his life, operated on the aged Chief Justice of the United States, John Marshall, and removed more than a thousand small calculi from his bladder. Sir Walter Ogilvie, thirty years before, had one taken from his bladder in London, which weighed three pounds and four ounces, and died in ten days in consequence of the severe operation.

With a failing memory and other indications of senile decay, the querulousness of second childhood is expected to come on; and yet peevishness is not necessarily an attendant of old age. We have had in our own day and in our profession an instance of cheerfulness, with great bodily and mental strength and activity, maintained at an age which not many men reach. Few books composed in a more charming spirit have ever emanated from medical men than the "Recollections" of Sir Henry Holland, written after he had passed his eighty-second year.\* Cicero probably overestimated the power of the mind to preserve its integrity against the wear of time, but there can not be a question that much may be done to delay the failure of its powers. Not only memory, but serenity of disposition may be improved and maintained by suitable appliances, one of the most important of which is pleasant occupation. If not kept in constant exercise the memory soon fails; and the mind, if not occupied, not only parts soon with its activity, but is almost sure to grow discontented, impatient and sour.

Old age hath yet his honor and his toil,†

Few greater mistakes could be made than the one often committed by old men of retiring too early from business. They soon learn, as Pascal expressed it long ago, that "what their minds require is not rest but perpetual excitement." The mind must have something upon which to fix its anticipations, or it is unhappy. One of the reasons why married people live longer than maids and bachelors, and are less lia-

\* *Recollections of Past Life*; a volume which may be commended to readers of every age and calling, for its matter, its pleasing style, and especially for the cheerful, benevolent temper which it displays.

† Tennyson's: *Ulysses*.

ble to insanity, it may be is that they find this source of happiness in their offspring. Dr. Rush thought he had observed that old people who lived with their children, and were surrounded by grandchildren, enjoyed better health and spirits than when they lived by themselves. And there can not be a doubt as to the truth of his observation. Children to the aged are, indeed, "what leaves are to the forest," bringing a glow of sunshine into their hearts which otherwise would never reach them. On the tombstone of an old Roman schoolmaster, L. Clodius Hermippus, it is recorded—

Vixit annos CXV dies V.  
Puellarum anhelitu.

Literally, "by the breath of maids;" but no doubt the idea meant to be expressed by the writer was that the life of the veteran schoolmaster had been lengthened as well as gladdened by the companionship of his young scholars.

The changes that take place in the brain as life advances involve necessarily a decay of the intellectual faculties, and with it a failure of the animal spirits, so that old age, unless counteracted by all the happy agencies that can be brought to bear upon it, is apt to become selfish, peevish, impatient, and unamiable. Some of these agencies have been mentioned, but much the most powerful of them all must be reckoned the promises and hopes of the Christian religion. These, where they have been firmly embraced, remain in the memory of the old man when nearly every other impression has faded from his mind. Instances are related of men who had forgotten the faces and even the names of their children, but who warmed up at once at the name of their Redeemer. "In the course of my inquiries" (concerning old age), says Dr. Rush, "I heard of a man of one hundred and one years of age, who declared that he had forgotten everything he had ever known except his God." In possession of a strong religious faith, the old man is serene under the accumulating infirmities of age, for he is looking forward to a life near at hand in which infirmities have no place. He observes without anxiety or concern the failure of his mortal powers as he sees it going on from day to day, because he is assured that

in a little while these powers will be clothed with immortality. And he approaches the valley of the shadow of death without fear, for he feels that he is leaning on an Almighty arm, and is persuaded that he has an eternal home in the heavens beyond.

The employments of old men, while they should be such as to fill the mind with gentle excitement, and save it from that weariness of life from which men have sometimes sought relief in suicide, ought never to be of a character to put either the body or the mind on the strain. Violent bodily exertion is attended, at that period of life, with dangers which have been pointed out. Equally ought the aged to avoid gusts of passion, which involve similar dangers; nor can the studious safely keep up "that painful thinking which corrodes the clay." The brain soon becomes fatigued, and sleep, the only restorer of lost nervous energy, must be indulged for longer periods. The sense of fatigue warns the laborer when his mind or his muscles require rest. But the thought with which I would close this essay is that the danger which most imperils the comfort of old age is, not overwork, but the want of enlivening occupation.

LOUISVILLE, KY.

Just as the form containing this most interesting paper was going to press, the message of the death of its author was received. A peculiar interest, therefore, attaches to these, the last words to the profession of one of its noblest and most illustrious members. We rejoice he was spared to write this paper, terminating his long, useful and honored life with such work. Elsewhere in this number we hope to refer to Dr. Yandell's character and death with some detail. T. P.

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## SALICYLIC ACID IN ACUTE RHEUMATISM.

BY JAMES I. ROOKER, M. D.

I was called December 2, 1877, to see Mrs. R., aged sixty-seven years, suffering severely from acute rheumatism of three or four days' duration. I learned that my patient was by birth a Virginian, and that she had previously enjoyed good

health, with the exception of an attack similar to the present one some fifteen years ago, which disabled her for a "long time." Her pulse was 130, temperature  $102\frac{1}{2}$ , bowels constipated, urine scanty and highly colored, with complete anorexia, skin very dry. A saline cathartic was ordered to be followed by the following prescription:

℞ Acidi salicylici, . . . . . ʒ ss  
 Sodæ boratis, . . . . . ʒ i  
 Glycerinæ, . . . . . f ʒ i  
 Aquæ menth. pip., . . . . . f ʒ v. M.

S. A table-spoonful every three hours.

The joints were wrapped in raw cotton, and ten grains of Dover's powder was given at bedtime.

December 3. Pulse 98, temperature 100, skin moist, bowels moved twice in the past twenty-four hours, decided increase of urine. The patient objected to the medicine on account of its disagreeable taste.

December 4. All previous symptoms much improved; profuse perspiration; a greater mobility of diseased joints; thinks she will get along now, and refuses to continue the use of the "nauseous medicine." Iodide of potassium with wine of colchicum was substituted. This treatment was continued for a few days, during which time I found my patient much worse than previously; joints painful and much swollen; skin hot and dry. She gladly consented to return to the bitter medicine. As soon as the system could be brought under the influence of this drug, there was a complete amelioration of all the symptoms, with a copious perspiration. This mode of treatment was continued until all the acute symptoms had entirely subsided, which was in about ten days. After this the case was treated on general principles, the patient recovering as soon as could be expected of one of her age.

REMARKS.—In presenting this case to the profession, I am well aware that I am offering nothing new to the intelligent physician, but only furnishing additional evidence as to the good effect of a comparatively new remedy in the treatment of one of the most obstinate diseases, a disease which is often

trying to patient and physician. Certainly no other disease has had more various methods of treatment, with so many different results. Alkalies, acids, stimulants, depressants, hot and cold baths, blisters, etc., have been used, and now salicylic acid; this multiplicity of remedies proving that the pathology of rheumatism is not understood.

Dr. Traube, of Berlin, in 1873, was one of the first to recommend this remedy in the treatment of acute and subacute rheumatism; since then it has been extensively used by others, and the results published. Dr. MacLagan published a very interesting article in the London Lancet, March, 1875, in which he extols salicylic acid in the treatment of acute rheumatism. The following resumé of fourteen cases of acute rheumatism, treated in Boston City Hospital, is given by Dr. Hall Curtis in the Boston Medical and Surgical Journal:

1. No effect from salicylic acid.
2. Alkalies for a month; then acid, eight doses, with relief.
3. Alkalies for twenty days without relief; acid in one day gave relief.
4. Acid for seven days; patient well.
5. Alkalies two days; acid seven days, with entire relief.
6. Relief after four doses of acid; this was continued four days; recovery.
7. Acid three days without relief; followed by tincture of chloride of iron for fifteen days; recovery.
8. Alkalies gave relief in four days; recurrence; acid given four days with entire relief.
9. Acid three days, no relief; alkalies twelve days, recovery.
10. Acid seven days, with entire relief.
11. Acid refused by stomach; alkalies during eleven days, with relief.
12. Complete relief in a few days,
13. Acid given; well in a few days.
14. Acid seven days; complete relief in three days.

Except in one or two instances, the salicylic acid was given in wafers.



## Reviews.

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**Spinal Disease and Spinal Curvatures**—Their Treatment by Suspension and the Use of the Plaster-of-Paris Bandage. By LEWIS A. SAYRE, M. D., Professor of Orthopedic Surgery in Bellevue Hospital Medical College, New York. London: Smith, Elder and Co., 130 Waterloo Place. Philadelphia: J. B. Lippincott and Co.

London, on the title-page, is a guarantee for the elegant manner in which the book is presented to the reader. All the world seems to be behind London in the typographical art. The hurried style of the volume bears the impress of the gifted author. Beauty and strength are not always combined. Many of the illustrations are photographs.

The treatment of Pott's disease by Sayre's Plaster Jacket has created a profound impression upon the surgical mind. Mechanical appliances had accomplished much, but they were far from satisfactory, giving more often comfort than cure; hence surgeons were not slow to try something which, although radically simple, promised much more than any of the expensive appliances. The first question, however, which presented itself, can a patient bear this solid encasement from the arm-pit to the hips?—will it not interfere with the muscles of the chest and the abdomen, and hence embarrass respiration?—was answered most emphatically on the first trial. Comfort took the place of discomfort, strength that of weakness, and in many instances patients walked who had been for weeks and months in a recumbent position.

A little mulatto child was brought to the writer; it was four years old, had never walked a step, could not bear its weight upon its legs. It had not Pott's disease, but its spine was distorted laterally and antero-posteriorly from want of muscular equilibrium; its legs and thighs could hardly be said to be covered with muscles, so skinny and attenuated were

they; its abdomen was large, very large, and as resonant as a drum. The mother had been told that "the child could not be benefited; that it could not live long." I put a plaster jacket on it in the presence of the clinical class at the Good Samaritan Hospital, and in one week that child walked across my office, holding by the hands of its mother. I cut the jacket up in front; it was often removed at night, and I was credibly informed that the little girl would call for her jacket in the morning before getting out of bed, so much comfort did she experience when it was upon her. The child grew straight, the protruding abdomen sunk, and the muscles of its extremities, under use, soon asserted their proper forms.

I took up my pen, however, not to report my cases but to say something of Prof. Sayre's book upon "Spinal deformities." He begins the work by a brief statement of his views upon the pathology and etiology of Pott's disease. Upon the proposition that caries of the spine is *most* frequently the result of a trauma, I think there would be but little discussion, most surgeons of experience would affirm; in fact, the whole subject of mechanical treatment, and the success which has been obtained, rests upon the affirmation of this question, for it would be of little use to attempt to relieve the bodies of vertebræ undergoing tubercular degeneration. It may well be doubted whether one single case of true strumous osteitis has ever been arrested.

Prof. Sayre's unusual experience in this class of cases renders his remarks upon symptomatology of great value, especially the symptoms in the formative stage of the disease. When Pott's disease is duly developed, its symptoms are so distinctly pronounced that they can not be mistaken; but in the early period, before deformity is manifest, if there be symptoms which unquestionably define the character and locate the morbid action, their recognition is of the utmost worth. Upon this our author says: The symptoms of spinal *caries* in its early stages are sometimes very obscure, and consist mainly in "transmitted and reflex nervous disturbances." When the caries affects the cervical vertebræ, he says that

long before deformity occurs the patient will complain of "dysphagia, a sense of constriction around the neck, a troublesome and frequent cough from laryngeal irritation, pain over the upper portion of the thorax." If it be dorsal caries, the patient may complain of "a feeling of constriction around the trunk, pain along the boundaries of the chest and abdomen." He may also complain of "ill-defined pains within the thorax, especially in the region of the heart." The earlier symptoms of caries in the "lumbo-dorsal region," may be found in the abdomen; young patients are suspected of having worms. When the caries is still lower, the reflex symptoms are usually seen in disorders of the bladder and rectum.

"*Reflex muscular contractions.*"—These, he says, "constitute another early symptom that may lead to the recognition of spinal caries." They form the muscles into rigid splints, that protect the spine from concussion during sudden movements.

For an examination of the spine, Prof. Sayre places the child face downwards across his knees; then by separating his limbs, he is enabled to make extension. Cold or heat along the spine often produces sufficient reflex muscular contraction to indicate the seat of disease.

After discussing briefly the "principles of local treatment," he passes at once to the treatment under which he gives a detailed account of the "Plaster-of-Paris Jacket," how to make it, the position of the patient during its application, and the management thereafter of both patient and jacket.

The writer has applied the jacket a great number of times, and with the most satisfactory results. Prof. Sayre's directions were followed very closely, except in the "dinner-pad" and the "strips of tin." The abdominal walls seemed to have sufficient play without the use of the former, and the jacket, without being reinforced by strips of tin, was strong enough. For a child, from three to five years old, I have used four rollers seven yards long. This made a firm jacket, and strong enough. Could I have made it lighter by the use of less bandage? Upon this part of the subject I regret the accomplished author has not gone into sufficient detail.

Whilst writing this article, I received a letter from a physician in northwestern Ohio, in which he incidentally says, "Dr. W.'s little girl's spine seems to be perfectly relieved." This was the first case upon which I applied the jacket, and a more unpromising one could not well be imagined—protruding chest, embarrassed respiration, reflex contraction of one of the limbs, with a sharp angle in the middle of the dorsal region. This child wore the first jacket several months, from the middle of July to some time during the fall.

Prof. Sayre, in case XXII, page 60, speaks of the comfort experienced by the patient when suspended; during the present week a bright little boy, with a dorso-lumbar projection, almost went to sleep during the application. So relieved was he that he did not start at the touch of the cold when the first layer of the roller was applied over the thin shirt. This, however, has not been my uniform experience. Suspension by the arm-pits—the weight of the body hanging upon the tissues of the axilla—is usually painful; and I have been favorably impressed with the suggestion made by Dr. Collins, of Guilford, Indiana. Dr. C., instead of having the straps for suspension pass directly upwards, crosses them—one in front, the other behind the head. In this way, the weight of the body comes either against the sides of the chest, high up under each arm; and he assures me that patients complain much less when suspended in this way than after the manner of Prof. Sayre.

The cervico-dorsal angle has always been the most difficult to overcome—the ordinary jacket, of course, does not reach high enough to relieve these cases; for such Prof. Sayre supplements the plaster encasement with what he calls his "jury-mast apparatus," the argument of which is the removal of the weight of the head and neck from the suffering vertebræ. It seems correct in principle, and from the report of cases it realizes in practice what it promises in theory.

Case XXIII, page 70, strikingly illustrates the value of the combination of the jacket and jury-mast. This boy was unable to walk, could not stand without support, had "grunting

respiration," and convergent strabismus. The jacket enabled him to walk, the addition of the jury-mast relieved his respiration, and his strabismus disappeared. The next day he went to Philadelphia, and spent two days without fatigue inspecting the centennial exposition! What other appliance would have given such wonderful results? When we reflect upon the past of surgery, such results are truly wonderful; for it is known of all men—medical and surgical men—that until the last few years such cases were regarded as remediless, hopeless. It would not require very deep research to establish the fact that to American surgeons belongs the merit of having brought about the gratifying change; and I would not be unjust to other worthy men were I to affirm that to our author, more than to any other one man, the credit is due for effecting this revolution.

Prof. Sayre rightfully gives to Dr. A. B. Judson, of New York, the credit of having first clearly explained that in lateral curvature there is always more or less of rotation of the bodies of the vertebræ. He heads this chapter as "rotary lateral curvature of the spine," and gives a number of cases to show the admirable conduct of the plaster jacket. In these cases of muscular insufficiency much was accomplished by well fitting braces and supports, but hardly so much as may be hoped from the "new practice," of which Sir James Paget says—"It is beyond trial; it is an assured success."

The value of this discovery is increased fourfold when it is remembered that the poor suffer most, and that an efficient and curative apparatus can be applied for a few pence. What surgeon has not had his heart bleed when the mother, with the suffering child, has said to him, "Doctor, will the instrument cost much?" How many children have been buried after long suffering, or have entered life permanent cripples, because the "instruments cost so much;" the means of cure and bread could not be afforded.

I close this volume with a feeling of pride that American surgery is accomplishing so much.

W. W. D.

**A Treatise on Gonorrhœa and Syphilis.** By SILAS DURKEE, M. D., Consulting Surgeon to the Boston City Hospital, etc. Sixth Edition. Philadelphia: Lindsay & Blakiston. 1877.

A medical work oftener recommends itself by its newness than by any other quality, but this should not be always a criterion. The past claims its talents as well as the present, and deserves recognition of its scientific monuments.

The book in question is an old one, but its merits have justified six editions with but little alteration or addition. It is systematic and compendious, and presents the subjects in an exhaustive manner and most admirable literary style.

The author believes gonorrhœa to be always caused by the same specific infective virus; objects to injections, relies on copaiba, etc., and recognizes the utility of bougies in gleet. All the sequelæ are fully considered. He accepts the duality of chancre virus, but only one syphilis; cures it with mercury, while not denying the efficacy of non-mercurial agents; believes in early abortion of chancre by cauterization before induration; and considers artificial syphilization as "beastly." The *bubon d'emblée* is doubted. All the possible secondary and tertiary conditions and their management are very satisfactorily presented. Altogether it is a book worthy of retention among our standard authorities.

J. G. R.

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**Surgical Observations, with Cases and Operations.** By J. MASON WARREN, M. D., Surgeon to the Massachusetts General Hospital, Fellow of the American Academy of Arts and Sciences, etc. Boston: Ticknor & Fields. Louisville: John P. Morton & Co. Boston: A. S. Williams & Co. 1877. 350 pp.

This is partly a posthumous publication of Dr. Warren's, for while it was printed during his lifetime and under his superintendence, the edition was for some reason withdrawn, and was not until last year placed before the profession. Hence, although it bears a date of ten years back, it is in reality a new book.

The arrangement of the work is somewhat peculiar. It is strictly, as its name implies, "Surgical Observations with Cases," etc.; but the range of these is so extensive that the whole field of surgery is pretty well covered, and so it is in reality a somewhat systematic treatise on surgery. We are particular in mentioning this fact, because a report of cases usually signifies a mere record of the curiosities of our art.

Dr. Warren followed rather strictly the original plan in dividing his subjects, adding chapters on gunshot wounds, miscellaneous cases and anæsthetics; in all three hundred and seventy-three cases are given. They are told in an exceedingly natural manner, and never fail to interest and instruct. The records have upon them always the impress of the gentleman and scholar, both alike disdaining embellishment. They are uncommonly fine models in their way. We have never taken up the book without having learned something from it. Of course we commend it to our readers.

The mechanical execution of the work is noteworthy. It is printed on heavy tinted paper, in clear type, and contains a number of chromo-lithographs. The cost of the work was, we believe, originally ten dollars. It is now but three dollars and a half, and a cheaper or more valuable work the student of surgery can hardly find.

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**How to Use the Microscope.** By JOHN PHINN, Editor of the American Journal of Microscopy. Second Edition. New York: The Industrial Publication Company. 1877.

American books for American students. Recent perusal of a huge German work on this very subject, full of German suggestions, descriptions and references, was the incentive to the expression of this maxim; and this little American book, all kernel, justifies it. The beginner can understand its teachings, the instruments it describes are easily attainable; and in a simple, concise manner, it tells you where to get, and how and when to use them.

Its chapters are devoted consecutively to the instrument,



its kinds, objectives, accessories, illumination, collecting of objects, their preparation, presentation and mounting. Not only will it be found a useful aid to the physician, but to all who, led either by love of science or elegant curiosity, wish to explore the world of little things, the wonders of which far surpass in variety and splendor those of the more tangible macrocosm.

J. G. R.

**The Annual Medical Directory of Regular Physicians in the State of Illinois for the Year 1878.** Published by F. A. EMMONS, M. D., Chicago.

The editor states that he has spared neither time nor expense in the preparation of this directory. In looking over the book we find a few omissions of some of our Illinois friends; but the work has been no doubt a very laborious one, and Dr. Emmons deserves credit for the completeness which the book presents. Beside the name of each physician, his residence, population of the town in which he lives, his alma mater, and the different medical associations to which he belongs, it contains the recent laws enacted regulating the practice of medicine in Illinois, the laws of the state pertaining to lunatics, idiots and drunkards, and the code of ethics. It is a valuable book to all persons having dealings with doctors.

**The Elements of Therapeutics**—A Clinical Guide to the Action of Medicines. By Dr. C. BINZ, Professor of Pharmacology in the University of Bonn. Translated from the fifth German edition, and edited, with Additions in conformity with the British and American Pharmacopœias, by EDWARD L. SPARKS, M. A., M. B., Oxon. New York: William Wood & Co. 1878. Louisville: John P. Morton & Co.

A book in every respect excellent. It is a judicious condensation of practical, useful facts, deduced from physiological experiment and clinical observation. It is equally judicious in its omissions and its selections. No one work is sufficient to the needs of the physician, but this work is one of those which every physician's library should possess.

## **Clinic of the Month.**

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MATERNAL IMPRESSIONS.—At the Royal Medical and Surgical Society, January 8th, Dr. William Sedgwick spoke as follows: Great care had been taken to avoid, as far as possible, any unnecessary reference to cases which possessed no practical significance, or which, from their doubtful character, would tend to increase skepticism. In reproductive development, women, as a rule, transmitted with more facility than men. The normal influence of the mother on the intellectual development of her offspring had been well and familiarly expressed in the term "mother-wit;" and, in abnormal development, it had been long known that women often served, and to a far greater extent than men, as conductors of an inheritance which they did not share. In like manner, it was now popularly believed that it was the emotional impressions of the mother, and not those of the father, which were imparted to the fetus in the form of "mother's marks." But this assumed limitation of emotional impressions to one sex did not always prevail; for originally either parent was thought to be capable of imaginatively affecting the offspring at the period of conception, and traces of this form of the belief had been lately found among some of the tribes in Central Africa. There was an essential difference between cases in which some modification of fetal structure had been slowly effected through the influence of the perceptive faculties, and those cases in which emotional impressions had been believed to act on the fetus by causing a supposed sudden arrest in its development. The occasional transmission to offspring of acquired defects of structure could not be logically objected to, since all abnormal modifications of the system must have been acquired

before they could have been transmitted. It was no doubt difficult to distinguish between the alleged influence of maternal impressions and that of heredity. The establishment, through hereditary influence, of acquired instincts in the lower animals, as well as the occurrence of hereditary talent in our own race, was apparently due to some modification of structure: and when, in like manner, maternal impressions had been said to react specially, if not exclusively, on the nervous system of the offspring, the effect might, with equal probability, be referred to some modification of structure produced through the medium of the blood. The exaggerated importance which had been assigned to nerve-communication, as the only probable way by which the supposed influence of maternal impressions could be conveyed to the fetus, had no doubt had a tendency, in former years, to retard and obscure the inquiry; and the opinion was expressed that the limitation of the influence of a maternal impression to a corresponding organ or tissue in the fetus, as a consequence of some slight and inappreciable alteration in the blood of the mother being imparted to the local nutrition of her offspring, might physiologically be regarded as more probable than limitation effected by nerve-influence. There was no reliable evidence that a congenital defect had ever been the direct and immediate result of arrested development; whilst the popular belief that a maternal impression could be conveyed to the fetus, and affect it like an electric shock, should be simply dismissed as a popular fallacy. The influence of the impression, at an early period of pregnancy, could only be conveyed to the part through the medium of the blood or nutrient fluid.

Dr. Sedgwick directed attention to the comparative physiology of reproduction in the lower animals; and showed that, when the tendency to an artificially developed excess of structure had, through hereditary influence, been pushed too far, it was apt to be followed by deficiency and arrest, as in the case of some top-knotted varieties of birds. Abnormal increase of structure, without any subsequent arrest, occurred in cases of supernumerary fingers and toes, which had been

sometimes referred to the influence of maternal impressions; and there was local increase of the vascular tissue in nævi, and of the hair, if not always of the skin, in those pseudomimetic moles which had been said to resemble the rats, mice, and other animals with hairy skins, which had frightened women during pregnancy. It might be expected that a maternal impression, sufficient to produce a physical peculiarity or defect in the fetus through the medium of the blood, would reappear, at least in a modified form, in some of the succeeding offspring; but there was very little evidence of any kind in favor of such an occurrence. Referring to the episode of Jacob's rods, he said that they were apparently employed, not to originate, but simply to aid in the increased production of specially marked offspring. There had been many illustrations of the effect produced by variously colored objects, on the breeding of sheep and other animals, since patriarchal times. Dr. Alexander Harvey and other observers had collected and published evidence on the subject. The evidence in favor of the influence of maternal impressions did not appear at present either sufficiently relevant or trustworthy. (British Medical Journal.)

NERVE-STRETCHING.—A. Blum, *Archives Générales*, January, observes that this operation was performed first by Billroth in 1869, and since that time the operation has been several times repeated in Germany and in England with an almost invariable success. Blum has collected eighteen cases of nerve-stretching, where the design was relief of neuralgias or of spasms, more or less general. The manual of operation he gives as follows:

1. *Incision*.—It should be made parallel to the direction of the nerve, and guided by topographic anatomy. It is impossible to give precise directions as to the place. If we suspect the presence of a foreign body, or adhesions from the primary wound, if there is a limited abnormal sensibility, the incision should be made *loco dolenti*. Otherwise it is necessary to select the place nearest the suspected point of departure of

the accident. The length of the incision will vary according to the depth of the nerve; five or six centimeters will generally be sufficient. Esmarch's bandage, if there be no contra-indication, will greatly facilitate the operation.

2. *Separation*.—In separating the nerve from the adjacent parts, use the finger or a grooved sound.

3. *Stretching*.—This is lifting up the nerve, and exercising greater or less traction. For this purpose the finger, the sound, a blunt hook or forceps, may be used. This step in the operation must conform to a definite rule.

Some surgeons, Nussbaum for example, isolate the nerve, stretch gently, and replace it. Others, as Verneuil, after having lifted up the nerve and stretched it, turn the edges of the grooved director against it, and press it between the instrument and the thumb. The force thus used is considerable. This method of operation cuts off all communication between the nerve termination and the center, and ought not, in our opinion, to be regarded as nerve stretching; it is a crushing, a section by a blunt instrument, but not an elongation.

Marchand having done Verneuil's operation upon the sciatic nerve of a dog, caused paralysis of motion and of sensation. At the autopsy, not the least appearance of nerve tubes was found at the point the sound was pressed—the nerve no longer existed; at the periphery the nerve was in complete degeneration. The method of Verneuil then may be rejected from the true operation of nerve-stretching.

4. Finally, the nerve is replaced, and the wound dressed. The dressing will vary with the surgeon, but in all cases early healing of the wound is important in order to prevent the production of cicatricial tissue, which, in consequence of nerve compression, may be the source of new accidents.

The prognosis of the operation is very favorable. The three deaths that have occurred in the eighteen cases I have collected, were not the result of the traumatism.

In regard to the force which will rupture nerves, the experiments of M. Tillaux inform us. After exposing the sciatic nerves of two fresh cadavers, all the connections between the

leg and thigh were divided except the nerve; then a force of fifty-four to fifty-eight kilogrammes exerted parallel to the axis of the member was required to rupture the nerves. Similar experiments were made upon the median and ulnar nerves; the force used in the rupture of each varied from twenty to twenty-five kilogrammes. From many investigations the force exerted in stretching a nerve, by means of a sound, ought never to be more than fifteen kilogrammes.

**SUDDEN DEATH IN DIABETES MELLITUS.**—Dr. Jules Cyr concludes, in the *Archives Générales* for January, a paper upon sudden death in diabetes. He states that in cases of such death, these three symptoms or periods—excitement, dyspnoea, drowsiness or coma—generally occur in this order.

The period of excitement may be absent or pass unperceived, but the dyspnoea is so painful and is so intense that it compels attention. The pathogeny of this sudden death rests upon these causes:

1. Under the influence of conditions almost unknown, sugar is transformed into acetone in the organism, and this substance produces acute intoxication by *acetonemia*, remarkably analogous to chloroform poisoning.
2. The quantity of sugar formed in the economy not being sufficiently eliminated, the blood becomes excessively filled with it, and the sugar then acts not precisely as a toxic substance, but in a way somewhat similar; it perhaps does not directly destroy the blood globules, but by its presence in the serum prevents the oxygenation of the blood; in a word, causes *anoxemia*.
3. The retention either of the extractive principles or of the watery portion of the urine, or of both, with or without the condition last mentioned, equally causes a special poisoning—a matter somewhat disputed—or a dropsy of the ventricles or œdema of the brain.
4. Atrophy of the heart may also be invoked, considering that this organ participates the general marasmus of the organ-

ism, this slow consumption which wears away the diabetic so often without revealing itself by well marked phenomena.

5. Finally, perhaps it is necessary to add to these that cerebral anemia, although its conclusive demonstration has not yet been made in the diabetic, may still be the cause of mortal coma.

#### ARSENIC TREATMENT OF MALARIAL FEVER IN ALGIERS.—

Dr. Sistach prefers above all other preparations of arsenic, in the treatment of malarial fever, the pure arsenious acid, a solution of one hundred and ten grammes to a liter of boiling water. By his observation in Algiers, he found, as the physiological effect of arsenic, increase of appetite and of muscular strength. There was a diminution of urea and of the carbonates of urine. However the effect of arsenic, upon the whole, was inferior to that of quinia, and even appeared to be hazardous in intermittent fevers, and also in severe remittent types of fever. Fowler's solution produced an inconstant or unreliable effect. (*Med.-Chir. Rundschau*, Dec., 1877.)

LOCAL TREATMENT OF ACNE.—Dr. Robert Lieveing, *Lancet*, Jan. 19, advises the following plan as generally successful:—(1) The face should be steamed every night by holding it over a basin of hot water for a few minutes. (2) The skin should then be well rubbed for five or ten minutes with soap and flannel, or a soft nail-brush may be used with advantage where the skin will bear it; the soap should then be sponged off with warm water. (3) When the face has been dried, a lotion composed of half an ounce of precipitated sulphur, two drachms of glycerine, one ounce of spirits of wine, three ounces each of lime-water and rose-water, should freely be applied and allowed to remain all night. Add ether to the lotion if the skin is greasy. Sometimes an ointment—hypochloride of sulphur  $\mathfrak{z}\text{ss}$ , carbonate of potash  $\text{gr. x}$ , oil of bitter almonds  $\text{gtt. x}$ , and lard  $\mathfrak{z}\text{i}$ , or sulphur ointment  $\mathfrak{z}\text{iii}$ , with vaseline  $\mathfrak{z}\text{v}$ —is better than the lotion. In either case leave the application on all night, and in the morning let it be washed off with warm oatmeal and water or weak gruel.



### Notes and Queries.

TOO MANY DOCTORS.—Dr. William Pepper, Professor of Clinical Medicine in the Medical Department of the University of Pennsylvania, delivered the introductory address at the commencement of the present course of instruction in that venerable institution. This address, by request of the students and by direction of the trustees, has been published.

Dr. Pepper bears an honored name—a name almost reverentially cherished by many physicians in various parts of our country. Many of the older—we will not write old or oldest—Philadelphia medical students remember well how valuable the clinical instructions given at the Penn Hospital by Dr. Pepper's father were, what wonderful skill and accuracy of diagnosis, what kindliness and courtesy of manner—making him in all one of the best types and models of a physician—the Dr. William Pepper of those days exhibited. But one generation passeth away, and another cometh. Another William Pepper is teaching clinical medicine in Philadelphia to other medical students than those who congregated there twenty-five or more years ago.

The subject of Dr. Pepper's address is, *Higher medical education the true interest of the public and of the profession*; and very ably has he maintained this thesis. For the moment we shall say nothing more of the address, but we will refer to some of the statistics appended to it.

From those statistics we find that the United States and Canada are abundantly supplied with the facilities for making doctors. Thus in the former the proportion between medical schools and the population is 1 to 477,392, and in the latter 1 to 426,947; while unfortunate England has only one medi-

cal school to a population of 1,705,895, and unhappy France 1 to 6,000,000.

We next come to a graver matter in these tables—the relative number of doctors and people. The average proportion in our states and territories is 1 to 618, while Great Britain has 1 to 1612, France 1 to 1,814, the German Empire 1 to 3,000. We frequently have letters from doctors wanting places—looking for openings. Our belief has been that the profession is packed so closely together that eligible locations and good openings are mythical, and that the only way is for a doctor to choose the location he likes and his means permit, and make his own opening. But now we find New Mexico is just the place, for it has only one doctor to 3,402 people, to which these applicants should be directed. They should be warned from Nevada, for it has one doctor for 380. Indiana and Kentucky are not suffering from dearth of doctors; the former has 1 to 465—a liberality of supply which her four medical schools will do nothing to lessen; while the latter has 1 to 547, and is credited with six medical schools, though really we know but four.

Every year, according to Dr. Pepper, the medical schools graduate 3,000; and probably half as many each year enter upon practice without being graduated. These facts bring us to our text, or rather prove it,—too many doctors.

*"Every gate is thronged with suitors; all the markets overflow."*

Many of the bad results of this great medical multiplication must be plain to every man. Without referring to the deteriorated product which is frequently a consequence of overproduction, it would be painful to relate more patent evils—the rude jostlings for place and practice, seeking success by dishonest and unjust means, trampling under foot the rights and courtesies of professional life in a fierce struggle for existence, cultivating the scheming arts of the politician, or the brazen effrontery of the quack rather than the dignity and virtues of the gentleman and the studious habits of the scholar: these are but a tithe of the mischiefs that are born of this crowd-poison.

Dr. Pepper's remarks as to a higher medical education are seasonable, of course they are. But must we wait until this higher medical education is the rule of all the schools? That is putting the day of redemption too far off; the good time may be coming, but it is too remote for even a robust faith. One of our contemporaries has recently expressed regret that there are medical students who have never studied Latin, and would like to remand them to the blacksmith shop or to the farm. But what severer punishment is to be visited upon professors in medical colleges who never studied Latin,—nay, who never learned to speak and write correct English? We apprehend many of our medical colleges would have a few vacant chairs, if such educational qualifications were requisite. Making them requisite something might be done to lessen the over-production of doctors; for it is largely half educated teachers, often self-appointed professors, who are doing most to lower the standard of professional qualifications. But we find little hope for relief in this suggestion.

Could there not be a tax imposed upon medical colleges varying with capacity for production, with amount of fees charged, etc.? These colleges might, as the distilleries do, keep their product in bond until there was a demand, and then pay the government tax. Wise statesmanship may here find an important source of public revenue, and thus materially diminish the public debt.

The increase of doctors, in a greater ratio than the increase of the means of subsistence, certainly appeals to some medical Malthus for a remedy. Dean Swift, familiar with the condition of the poverty-stricken Irish, published, in 1729, "A modest proposal for preventing the children of poor people from being a burden to their parents or country, and for making them beneficial to the public." His plan was founded upon the following statement: "I have been assured by a very knowing American of my acquaintance in London, that a young, healthy child, well nursed, is, at a year old, a most delicious, nourishing, and wholesome food, whether stewed, roasted, baked or boiled; and I make no doubt that it will

equally serve in a fricassé or ragout." The Dean estimated that 100,000 infants of a year old could be sold at ten shillings a piece, thus adding annually to Ireland an income of £50,000. This proposal, made nearly a century and a half ago, was never acted upon, though some French writers took it seriously into consideration. If child-eating, though pressed by the strong arguments of Swift, was not adopted then, it is hardly probable that any other form of anthropophagy will be now accepted by enlightened nations. A witty French physician, in referring to the *cura famis*, calls it a sort of *auto-phagy*; so, too, if doctors were as toothsome and tender as the Dean, on the authority of his knowing American friend, asserted babies to be, we might have the word *iatrophagy* introduced into our vocabularies, and its practice might be trusted for a decided lessening the number of doctors. Pantagruel ate six pilgrims in a salad, making no complaint of the toughness of their tissues; and their active mode of life certainly would be more conducive to such a condition than that of a doctor sitting in his office until his glutei muscles have been absorbed by pressure, while he patiently waits for clients who do not come.

Vivisection presents a fine field for the philanthropic self-sacrifice of superfluous doctors. Might not some of our leading medical colleges pay liberally for human subjects on whom to illustrate the truths of experimental physiology, or test the effects of some new agents, and let the cats and dogs, pigeons and frogs, rats, rabbits and guinea-pigs, have a rest. There is no telling how much human vivisection would add to the development of scientific medicine, nor how enduring the martyr-memories of those who thus offered themselves upon its altar.

But even this diversion is not large enough to sensibly diminish the great current of American doctors, nor are we sanguine that all the means suggested, could they be combined, would suffice. Just as we were about despairing and ready to give up the problem as insoluble, we chanced upon this concluding sentence of one of the papers in the Transac-

tions of the Philadelphia International Medical Congress:—"There are reasons why pharmacy should be regarded as a specialty within the general bounds of the medical profession." Here is the very opening for fifty or a hundred thousand doctors; they and they only can fill it, as certainly as did Martius Curtius close that horrid cavern in the Forum which hitherto had devoured vast quantities of earth, and yet was not full. Let one-third of the medical profession become pharmacists. It will soon come to pass that every well regulated drug store will have one or more doctors dispensing its calomel and candies, its soap and syringes, its perfumes and plasters, its senna and salts, and all sorts of dye-stuffs. Indeed, a drug store without a doctor will be as abnormal as a king without a crown, a lady without a "bang," or a dog without a bone.

But in the midst of these speculations the vexatious thought has come that possibly we have found a remedy without understanding the disease; we have been working at the right leg, when it was the left that needed attention. Who knows but the real difficulty is, not as to the number of doctors in the United States, but as to the number of people—not too many of the former, but too few of the latter! Then the question comes as to how the population is to be increased; but this opens too wide a field, at least for present consideration.

#### WITH OR WITHOUT AN N.?

*My Dear Dr. Parvin:*—The twenty-eighth volume of the transactions of the American Medical Association, just come to hand, contains the address in Practice of Medicine, by the president of that section, P. G. Robinson, M. D., of St. Louis; and one division of the address is devoted to the consideration of the medicinal qualities of the yellow (false) jasmine, which he spells—giving its botanical name—*gelsemium sempervirens*. This orthography I had supposed was obsolete. Webster and Worcester both spell it *gelsemium*, and both pronounce it *gelsē'mium*; while the United States Pharmaco-

pœia gives the same orthography, but scores the pronunciation gelsem'ium. All these follow Gray in the orthography of the word, and so do most scientific men, I believe. But Michaux and Pursh spell it gelseminum, and the American Dispensatory and all (I believe) of the Eclectic fraternity follow them, pronouncing it gelsemī'num. As the Eclectics were the leaders in its use as a medical agent in the practice of physicians, both their orthography and pronunciation became widespread before the drug was introduced into scientific medicine; but since such introduction it has been my impression that their methods had been abandoned, and I was surprised to find that Dr. Robinson spelled it gelseminum. Nevertheless he may be right, and as the remedy is likely, in the future, to assume a high importance, I ask you to authoritatively announce its correct orthography and pronunciation. The etymon of the word I have not been able to find; perhaps you have a more fruitful field for such research.

Richmond, Ind., Jan., 1878.

J. F. H.

Our Richmond friend we believe correct in his criticism; the word is gelsemium, not gelseminum. Other authorities in botany beside Gray give gelsemium, *e. g.*, Kochler, Professor of Botany in the College of Pharmacy of the city of New York. So, too, we find gelsemium in the great work of Maout and Decaisne, translated and published in London in 1873.

Littré, *Dictionnaire de la Langue Francaise*, Paris, 1873, gives the etymology of the word as follows:—Spanish, *jasmin*; Italian, *gelsimo*, from the Arabic *iâsmin*.

In Richardson's dictionary we find that the word is derived from the Greek *ιάσμη*. This, according to Lidell and Scott, was "a Persian perfume, perhaps oil of jasmin." In view of this, which we believe to be the true etymology, there can be no good reason for introducing n into the word. So, too, the Greek *eta*, the final letter of the original, would seem to suggest the pronunciation of Webster and of Worcester, rather than that of the United States Pharmacopœia.

THE LATE LUNSFORD P. YANDELL, M. D.—On the fourth day of February, 1878, Dr. L. P. Vandell, in his seventy-third year, departed this life. The death of this eminent and venerable medical teacher, this industrious author, this kind friend, this christian gentleman, demands more than a hurried tribute to his character and history, to his virtues and fame. But such tribute is all that we can now give; and with less reluctance we do it thus imperfectly, because trusting that in the near future another and abler pen will compensate present imperfections, supply present deficiencies.

Dr. Vandell was born in Tennessee, and his professional education was commenced in the office of his father, an able and eminent physician, and continued at Lexington, and then at Baltimore: at the latter city he was graduated in 1825. After six years' practice in Tennessee, he became a professor in Transylvania University. From Lexington he removed to Louisville in 1837, upon the organization of the medical department of the University. No one contributed more to the success of this school; his name and fame are part of its history.

Resigning his chair in the Louisville University in 1859, he removed to Memphis, and accepted a professorship in the medical school in that city. As a medical teacher it will be seen he was connected with three different schools. Not only so, but he occupied three different departments, viz., chemistry, materia medica, and physiology. That he manifested great ability as a teacher, not only making his instructions thorough and clear, but also was possessed of a fervid eloquence and a graceful rhetoric, was the general testimony of his students. In 1862, while living in Memphis, he entered the Presbyterian ministry, and for a time had a pastoral charge. In 1867 he returned to Louisville, and resumed the practice of medicine.

Dr. Vandell's contributions to medical literature have been abundant. He was editor of the *Transylvania Journal of Medicine*, and subsequently of the *Western Journal of Medicine and Surgery*. In addition to editorial work, he contrib.



uted original papers to these, and to other medical periodicals since their day. The readers of the American Practitioner have been greatly favored in having presented them, in the form of reviews and of original papers, almost all of the contributions to medical literature he made during the last few years. His paper in this number of our journal is worthy the most careful reading, and in form and matter deserves rank among the best medical essays.\* Probably Dr. Vandell's most elaborate published work was the Address on Medical Literature before the Philadelphia International Medical Congress. It is marked by the usual characteristics of the author's composition—patient industry, great research, calm and just judgment, clear and graceful style.

Relating to Dr. Vandell's final hours, we make the following extract from a letter of Dr. D. W. Vandell :

He died in the full possession of all his faculties. He said, when asked if he had anything special to say, "No, nothing. I have provided for matters here. David knows my wishes as to that. And as to the hereafter I have left that all to my Redeemer. I should have liked to live a few years longer, to finish my book and see how it was received. But that is no great matter." During Sunday night he grew restless, and some pain recurred, when he asked for opium. A short while after taking it he remarked, "What a wonderful drug it is. It is, indeed, *magnum donum Dei*." I added, "De Quincey, you remember, said that opium was the

\*In a note accompanying the MSS. of this paper, he remarked:—"This probably is the last of my contributions to medical journalism." What a true prophecy was unconsciously made! The last line he ever wrote was in regard to this paper. At noon on the Thursday before he died, feeling somewhat better—he had then been sick some days—he wrote his son thus, "I should like to see the proof of my article on Old—"; here his hand faltered, and the rest of the sentence was illegible. This incident reminds us of a passage in the translator's preface to Sydenham's Practice: the translation was published in London, 1711. Sydenham was at death five years younger than Dr. Vandell, but the characters of these men present many points of similarity, and the passage we quote might apply equally well to each:—"This worthy man was always busy in improving the practice of physick, even then when he was stepping on the threshold of the other world, and, like the great Archimedes, would not suffer himself to be interrupted by anything but resistless fate."

only universal, catholic anodyne." "Yes," he replied, "but Sydenham said it better—*magnum donum Dei*;" and the words swelled as he uttered them, as the Latin always did, you know, on his tongue. He was tranquilized by the opium, and slept much during the remainder of the night, but evidently grew more and more feeble, and continued to sink till, when raising up to take a sip of water, his head fell gently back, and he ceased to breathe at ten minutes before nine o'clock, Monday, February 4th.

Of Dr. Vandell personally, of him as a man, limited space permits us to say but a few words. His was a well-poised, symmetrical character. Not often does our imperfect humanity unfold a better type than in him. A stoic sternness, if need be, in the discharge of duty; a bravery that never failed in difficulty or faltered in danger; a personal integrity too bright for stain, too strong for temptation; a woman's tenderness of sympathy and quickness of help for the suffering; a child's simplicity of ways and disposition; an industry that was tireless and patient; a graceful dignity and genial courtesy, retiring rather than obtrusive; a wise counselor and a faithful friend; humility dwelt with him as she does with all who are truly learned and great, and honor and truth were his constant companions. Such is his picture as he appears to us with the evening sun shedding its softened light upon him, and as we learn it from what others have said who knew him when that sun was in its meridian.

The lesson of this man's life, and the lesson of this man's death—what are they? Only the blind can not see them; only the foolish will not learn them.

DEATH OF DR. PEASLEE.—On the twenty-first of January Dr. Edmund R. Peaslee died at New York of pneumonia, after a brief illness. Thus has passed away one of the most scholarly, industrious and eminent of American physicians. His great work upon Ovarian Tumors, without an equal in the English, or probably any other language, would be enough to assure his fame for generations. Those who knew him and met him in professional gatherings, will greatly miss him; his

wise counsels, his extensive learning, his kind and courteous manners, won him universal respect and love. That slender form, that pale face, from which a soul of kindness and of strength looked out, that snow-white hair, those low but earnest and persuasive tones, are of the past in fact, but of the present in the memory of many an American physician.

TO CONTRIBUTORS.—Papers for the *American Practitioner* have been received from Drs. F. J. Bumstead, J. A. Ochterlony, J. R. Weist, J. L. Thompson, J. C. Reeve, A. A. Faris, and G. W. H. Kemper. All of these papers will, if possible, appear in our next issue. Some other papers have also been received. We thank all our correspondents for their kindness, and shall make use of their favors as soon as possible. We wish a largely increased subscription list were certain, so that a large and permanent increase in the number of pages of our journal could at once be made.

EMMET'S CURETTE FORCEPS.—In the *American Practitioner*, April, 1877, we gave a representation and description of this valuable instrument, and we have had frequent letters from physicians asking where it could be obtained. In reply to these we answer, by writing to Mr. Leonard, of Sheppard and Dudley, 150 William street, New York City.

DEATH OF WILLIAM STOKES, M. D., F. R. S.—This eminent physician died in Dublin on the 7th of January, in his seventy-fourth year.

TO SUBSCRIBERS.—We hope all will realize the importance of remitting their subscriptions as soon as possible. Thanks to those who have sent us new subscribers: we wish ever so many more would do likewise.